

The image features a solid blue background with a subtle, embossed or marbled texture. The texture consists of irregular, vein-like patterns that create a sense of depth and movement. In the center of the image, the word "ABSTRACT" is printed in a bold, black, serif font. The letters are evenly spaced and have a classic, slightly formal appearance. The overall composition is simple and elegant, focusing on the interplay of color, texture, and typography.

ABSTRACT

Baker, Susan D. Pd.D. and Mathis, Christopher J Ph.D.

(Morgan State University)

Susan Stites-Doe, Ph.D

(The College at Brockport, State University of New York)

“An Exploratory Study Investigating Leader and Follower Characteristics at U S.

Healthcare Organizations”

Journal of Managerial Issues

23:3, fall 2011, pp 341-363

This paper proposes that followers have the ability to share the leadership role. Informed by both transformational leadership and active followership literatures, a sample of 200 American healthcare employees respond to field surveys, and results were analyzed using path analysis. The findings reveal that followers engage in behaviors that are associated with both exemplary leadership and effective followership; these joint performance characteristics are significantly related in the findings and support the importance of the research. This process of role sharing may suggest a method for predicting the emergence of leadership in followers who are particularly well-suited for the duality of their roles by virtue of having performed the role of follower very well. Implications and limitations of the study are discussed and avenues of future research are identified.

HEALTH CARE INDUSTRY--HUMAN RESOURCE MANAGEMENT

EMPLOYEE ATTITUDE--EVALUATION

LEADERSHIP STYLES—EVALUATION

LABOR RELATIONS

MANAGEMENT STYLE

COMPUTER-COMMUNICATION NETWORKS

COMPUTER-SYSTEMS ORGANIZATION

SIMULATION AND MODELING

Bashar Quidah, Nabil J. Sarhan
(Wayne State University)

“Efficient Delivery of On-Demand Video Streams to Heterogeneous Receivers”

ACM Transactions On Multimedia Computing, Communications And Applications

6 3, 2010 , pp. 20[20:2-20:25]

The number of video streams that can be serviced concurrently is highly constrained by the required real-time and high-rate transfers of multimedia data. Resource sharing techniques, such as Batching, Patching, and Earliest Reachable Merge Target(ERMT), can be used to address this problem by utilizing the multicast facility, which allows multiple request to share the same set of server and network resources. They assume, however, that all clients have the same available download bandwidth and buffer space. We study how to efficiently support clients with varying available download bandwidth and buffer space, while delivering data in a client-pull fashion using enhanced resource sharing. In particular, we propose three hybrid solutions to address the variability in the download bandwidth among clients: Simple Hybrid Solution (SHS), Adaptive Hybrid Solution (AHS), and Enhanced Hybrid Solution (EHS). SHS simply combines Batching with either Patching or ERMT, leading to two alternatives: SHS-P and SHS-E, respectively. Batching is used for clients with bandwidth lower than double the video playback rate, and Patching/ERMT is used for the rest. In contrast, AHS and EHS classify clients into multiple bandwidth classes and service them accordingly. AHS employs a new stream type, called adaptive stream and EHS employs an enhanced adaptive stream type to serve clients with bandwidth capacities ranging between the video playback rate and double that rate. AHS and EHS employ adaptive streams in conjunction with Batching and Patching or ERMT, leading to four possible schemes: AHS-P, AHS-E, EHS-P and EHS-E. Moreover, we consider the variability of the available buffer space among clients. Furthermore, we study how the waiting playback requests for different videos can be scheduled for service in the heterogeneous environment, capturing the variations in both the client bandwidth and buffer space. We evaluate the effectiveness of the proposed and analyze various scheduling policies through extensive simulation.

**COMPUTER-COMMUNICATION NETWORKS
COMPUTER-SYSTEMS ORGANIZATION
SIMULATION AND MODELING**

Beausoleil, Raymond G.
(HP laboratories)

"Large-Scale Integrated Photonics for High Performance Interconnects"

ACM Journal on Emerging Technologies in Computing Systems

7:2, 2011, pp. 6[1-54]

Moore's law has set great expectations that the performance of information technology will improve exponentially until at least the end of this decade. Although the physics of silicon transistors alone might allow this expectation to be met, the physics of the long metal wires that cross and connect packages almost certainly will not. Global-level interconnects incorporating large-scale integrated photonics fabricated on the same platform as silicon microelectronic hold the promise of revolutionizing computing by enabling parallel many-core and network switch architectures that combine unprecedented performance and ease of use with affordable power consumption.

Over the last decade, remarkable progress has been made in research on low-power silicon photonic devices for interconnect applications, and CMOS-compatible fabrication technologies promise a "Moore's Law for photonics" that could completely change the economics of integrated optics. In this survey, photonic technologies amenable to large scale CMOS integration are reviewed from the perspective of high-performance interconnects operating over distance scales of 1mm to 100m. An overview of the requirement placed on integrated optical devices by a variety of modern computer applications leads to discussions of active and passive photonic components designed to generate, guide, filter, modulate, and detect light in the telecommunication bands. Critical challenges and prospects for large-scale integration are evaluated with an emphasis on silicon-on-insulator as a platform for photonics.

INPUT/OUTPUT AND DATA COMMUNICATIONS INTEGRATED CIRCUITS

MEMORY STRUCTURES INTEGRATED CIRCUITS

Ajay N Bhoj and Niraj K. Jha
(Princeton University)

“Gated-Diode FinFET DRAMs: DEVICE and Circuit Design-Considerations”

ACM Journal Emerging Technologies in Computing Systems.

6 3, 2010 , pp. 12 [12:2-12:32]

Scaling bulk CMOS SRAM technology for on-chip caches beyond the 22nm node is questionable, on account of high leakage power consumption, performance degradation and instability due to process variations. Recently, two-three transistor one gated diode (2T/3T1D) DRAMs were proposed as alternatives to address the SRAM variability problem, with an emphasis on high activity embedded cache applications. They are highly competitive to SRAM in terms of performance while having a smaller power and area footprint at lower technology nodes. The current evolutionary trend in transistor structures is moving toward an area of multigate devices, which makes it necessary to identify design issues and advantages of gated-diode DRAMs implemented in a multigate technology

In this work, we address gated-diode DRAM design in FinFET technology using mixed-mode

2D-device simulations. We revisit the model of internal voltage gain in bulk gated diodes and extend it to provide quantitative insight into designing Fin gated diodes, that is, gated diodes in FinFET technology To this effect, we propose FinFET variants of the bulk gated-diode configuration and identify parameters that are critical to enhancing the retention time and read current in 2T/3T1D FinFET DRAMs. Additionally, we show the superiority of the 2T/3T1D FinFET DRAM over 6T FinFET SRAM having pass-gate feedback

(6T PGFB) and 2T1D bulk DRAM under the effect of physical parameter process variations using a quasi-Monte Carlo method implemented in FinE, an environment we have developed for double-gate-circuit design that irrigates Sentaurus TCAD from Synopsys with the Spice3-UFDG double-gate compact model from University of Florida, under a single framework. Finally, we present a new tunable threshold gated diode FinFET amplifier which uses an n-type gated diode for voltage-boosting along with a p-type gated diode for zero suppression.

**MEMORY STRUCTURES
INTEGRATED CIRCUITS**

Ajay N. Bhoj and Niraj K. Jha

(Princeton University)

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ACM Journal Emerging Technologies in Computing Systems.

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**MEMORY STRUCTURES
INTEGRATED CIRCUITS**

Breaux, Kevin T

(Nicholls State University)

Don W Finn

(University of North Texas)

Ambrose Jones III

(The University of North Carolina-Greenboro)

“Budgetary Commitment as a Mediating Influence”

Journal of Managerial Issues

23:4, Winter 2011, pp 426-446

This study extends the Clinton and Hunton (2001) findings that the degree of budgetary participation congruence (DPC) is associated with improved financial performance by testing the effects of DPC on managerial performance using a scale based on Mahoney et al. (1963, 1965). This research also responds to a call in previous research (Murray, 1990) that participative budgeting does not directly affect performance, but does so through an intervening variable. Using a sample of United States managers, this study demonstrates that the intervening variable, budgetary commitment, acts as a key mediator in the linkage between the degree of participative budgetary congruence and managerial performance. Budgetary commitment is a redefined construct originally developed by Neubert and Cady (2001) as “program Commitment.” When combined in a structural equation model, the explanatory power of the model indicates that DPC is not directly associated with managerial performance. However, as mediated by budgetary commitment, DPC does have a positive and significance impact on managerial performance. Additionally, results show that budgetary commitment captures key features of its antecedents: leader behavior, change efficacy, and teamwork.

UNITED STATES-US

STUDIES

FINANCIAL PERFORMANCE

COMMITMENTS

IMPACT ANALYSIS

BUDGETING

Biberman, Aleksander, Gilbert, Hendry, Chan, Johnnie, Bergman, Keren
(Columbia University)

Preston, Kyle, Sherwood-Droz, Nicolás, Levy, Jacob S., Lipson, Michal
(Cornell University)

“Photonic Network-On-Chip Architectures Using Multilayer Deposited Silicon Materials
for High-Performance Chip Multiprocessors”

ACM Journal on Emerging Technologies in Computing Systems

7:2, 2011, pp. 7[1-25]

Integrated photonics has been slated as a revolutionary technology with the potential to mitigate the many challenges associated with on- and off-chip electrical interconnection networks. To date, all proposed chip-scale photonic interconnects have been based on the crystalline silicon platform for CMOS-compatible fabrication. However, maintaining CMOS compatibility does not preclude the use of other CMOS-compatible silicon materials such as silicon nitride and polycrystalline silicon. In this work, we investigate utilizing devices based on these deposited materials to design photonic networks with multiple layers of photonic devices. We apply rigorous device optimization and insertion analysis on various network architectures, demonstrating that multilayer photonic networks can exhibit dramatically lower total insertion loss, enabling unprecedented bandwidth scalability we show that significant improvements in waveguide crossing insertion losses resulting from using these materials enables the realization of topologies that were previously not feasible using only the single-layer crystalline silicon approaches.

**INPUT/OUTPUT AND DATA COMMUNICATIONS
COMPUTER-COMMUNICATION NETWORKS
PEFORMANCE OF SYSTEMS**

MANAGEMENT THEORY

EXPERIMENT/THEORETICAL TREATMENT

Bishop, Karen., Webber, Sheila Simsarian and O'Neill, Regina
(Suffolk University)

"Preparation and Prior Experience in Issue-Selling Success"

Journal of Managerial Issues

23:3, fall 2011, pp 323-340

In understanding the important dynamic of the manager as a change agent, further exploration into how issues are sold to top management is essential. This research quantifies the measurement of issue selling and empirically examines its impact on success, looking at a sample of managers in a large hotel. Through the lens of the attention-based view of the firm, this research establishes the temporal aspects of this process at work within the organization by separating the key elements of issue selling into two dimensions. Results focus on two components: preparation and selling. In examining their relationships with organizational tenure, findings show that while prior experience in a manager's organization leads to higher levels of preparation, there is no relationship between experience and levels of issue selling. In addition, selling reported by the managers in the sample does not significantly influence issue-selling success. However, the logistic regression results indicate that preparation is more than three times as likely to influence issue-selling success. The impact of contextual factors, the role of organizational culture, and the possibility of targeted training are also discussed within the framework of issue selling.

STUDIES

REGRESSION ANALYSIS

MANAGEMENT THEORY

EXPERIMENT/THEORITICAL TREATMENT

Brettel, Malte ., Greve, Greta I. and Flatten, Tess C.
(RWTH Aachen)

“Giving up Linearity: Absorptive Capacity and Performance “

Journal of Managerial Issues

23:2, Summer 2011, pp164-189

Absorptive capacity (ACAP) is defined as the ability to recognize new external knowledge, to assimilate it, and to apply it to commercial ends (Cohent and Levinthal, 1990). Although ACAP has been a widely researched construct during the last two decades, survey-based empirical studies in this field have focused only on linear relationships. The present research addresses this gap by comparing the linear and curvilinear relationships between ACAP and performance measures. Findings indicate that linear specifications result in good approximation, but that curvilinear models are better in explaining certain relationships. To address the question of resource allocation, this study draws on the dynamic capabilities view and on the theoretical considerations of Zahra and George (2002) to reveal these curvilinear effects between ACAP and performance.

KNOWLEDGE TRANSFER

ABSORPTION

BUSINESS SUCCESS

LEARNING ORGANIZATION

COMPETITIVE ADVANTAGE

Camp, Richard R. Ph.D., Eric Schulz, Ph. D., Mary E. Vielhaber, Ph. D., and Fraya
Wagner-Marsh, Ph. D.

(Eastern Michigan University)

“Human Resource Professionals’ Perceptions of Interviewer Training”

Journal of Managerial Issues

23:3, fall 2011, pp 250-268

The employment interview is the most frequently used selection device, but managers who conduct interviews often have little or no training in the process. This lack of training seems puzzling given the strong evidence that managers often commit numerous errors during the interview process and in making hiring decisions. Human Resource (HR) professionals can play a key role in advocating for interviewer training in organizations. The results of this study demonstrate that HR professionals who have experience in staffing or talent assessment as well as experience in participating in a number of interviews are positive about the benefits of interviewer training. Additionally, HR professionals who have made an attempt to advocate for interviewer training have a more positive attitude toward interviewer training than those who never attempted to advocate. Finally, women HR professionals rate interviewer training as providing more positive benefits than men and more likely to advocates for interviewer training.

**HUMAN RESOURCE MANAGEMENT
EMPLOOYEE SURVEY
OPERATIONAL EDUCATIONAL MANAGEMENT
ORGANIZATIONS**

Chen, Nian-Zhong, Soares, C. Guedes
(Technicaal University of Lisbon)
“Ultimate Longitudinal Strength of Ship Hulls of Composite Materials”
Journal of Ship Research
52:3, September 2008; pp. 184-193

A progressive collapse analysis method is proposed to predict the ultimate longitudinal strength of ship hulls of composite materials. The load-average strain curve derived from a progressive failure nonlinear finite element analysis is adopted for representing the behavior of each stiffened composite panel forming a hull cross section. The bending moment of the ship hull under a prescribed curvature is achieved by integrating the reaction force of each stiffened panel over a hull cross section based on the load-average strain curves. The ultimate longitudinal strength of a ship hull is obtained from the moment-curvature relationship of the ship hull, which is established by imposing progressively increasing curvatures of a hull cross section. An all-composite ship is analyzed as an application.

**COMPOSITES
LONGITUDINAL STRENGTH
BUCKLING**

COMPUTER COMMUNICATION NETWORKS

Cheng, Xu and Liu, Jiangchuan
(Simon Fraser University)

“Exploring Interest Correlation for Peer-to-Peer Socialized Video Sharing”

ACM Transactions On Multimedia Computing, Communications And Applications

8 1, 2012 , pp. 5 [5:2-5:20]

The last five years have witnessed an explosion of networked video sharing, represented by YouTube, as a new killer Internet application. Their sustainable development however is severely hindered by the intrinsic limit of their client/server architecture. A shift to the peer-to-peer paradigm has been widely suggested with success already shown in live video streaming and movie-on-demand. Unfortunately our latest measurement demonstrates that short video clips exhibit drastically different statistics, which would simply render these existing solutions suboptimal, if not entirely inapplicable. Our long-term measurement over five million YouTube videos, on the other hand, reveals interesting social networks with strong correlation among the videos, thus opening a new opportunities to explore. In this article, we present NetTube, a novel peer-to-peer assisted delivering framework that explores the user interest correlation for short video sharing. We address a series of key design issues to realize the system, including a bi-layer overlay, an efficient indexing scheme, a delay aware scheduling mechanism, and a prefetching strategy leveraging interest correlation. We evaluate NetTube through both simulations and prototype experiments, which show that it greatly reduces the server workload. Improves the playback quality and scales well.

COMPUTER-COMMUNICATION-NETWORKS

Chetty, Girija

(University of Canberra)

White, Matthew

(Adsoftech R & D Pty Ltd.)

“Multimedia Sensor Fusion for Retrieving Identity in Biometric Access Control Systems”

ACM Transactions On Multimedia Computing, Communications And Applications

6 4, 2010 , pp. 26[26:2-26:21]

In this article, we propose a novel multimedia sensor fusion approach based on heterogeneous for biometric access control applications. The proposed fusion technique uses multiple acoustic and visual sensors for extracting dominant biometric cues, and combines them with nondominant cues. The performance evaluation of the proposed fusion protocol and a novel cascaded authentication approach using a 3D stereovision database shows a significant improvement in performance and robustness with equal error rates of 42.9% (audio only), 32% (audio +3Dface+ 2D lip features), 15% (audio + 3D face+ 2D eye features), and 7.3% (audio -3D face+ 2D eye-eyebrows) respectively.

OPERATING SYSTEMS

PATTERN RECOGNITION

Chih-Yi Chiu

(National Chiayi University)

Hsin-Min Wang and Chu-Song Chen

(Institute of Information Science and Research Center for
Information Technology Innovation, Academia Sinica)

“Fast Min-Hashing Indexing and Robust Spatio-Temporal Matching for Detecting Video Copies”

ACM Transactions On Multimedia Computing, Communications And Applications

6 2, 2010 , pp. 10[10:2-10:23]

The increase in the number of video copies, both legal and illegal, has become a major problem in the multimedia and Internet era. In this article, we propose a novel method for detecting various video copies in a video sequence. To achieve fast and robust detection. In the method fully integrates several components, namely the min-hashing signature to compactly represent a video sequence, a spatio-temporal matching scheme to accurately evaluate video similarity compiled from the spatial and temporal aspects, and some speedup techniques to expedite both min-hashing indexing and spatio-temporal matching. The results of experiments demonstrate that, compared to several baseline methods with different feature descriptors and matching schemes, the proposed method which combines both global and local feature descriptors yields the best performance when encountering a variety of video transformations. The method is very fast, requiring approximately 0.06 seconds to search for copies of a thirty second video clip in six-hour video-sequence.

**INFORMATION STORAGE AND RETRIEVAL
ARTIFICIAL INTELLIGENCE**

Choi, Byung-Soo
(University of Seoul)
Meter, Rodney Van
(Keio University)

“On the effect of Quantum Interaction Distance on Quantum Addition Circuits”

ACM Journal on Emerging Technologies in Computing Systems

7:3, 2011, pp. 11[1-17]

We investigate the theoretical limits of the effect of the quantum interaction distance on the speed of exact quantum addition circuits. For this study, we exploit graph embedding for quantum adder circuit for two n -qubit registers onto a practical architecture, which limits interaction distance to the nearest neighbors only, and supports only one- and two- qubit logical gates. Unfortunately, on the chosen k -dimensional practical architecture, we prove that the depth lower bound of any exact quantum addition circuits is no longer $\Omega(\log n)$, but $\Omega(\sqrt[k]{n})$. This result, the first application of graph embedding to quantum circuits and devices, provides new tool for compiler development, emphasizes the impact of quantum computer architecture on performance, and acts as cautionary note when evaluating the time performance of quantum algorithms.

PROCESSOR ARCHITECTURES
ARITHMETIC AND LOGIC ARCHITECTURES
HARDWARE

Cianchetti, Mark J., And Albonese, David H.

(Cornell University)

"A Low-Latency, High-Throughput On-Chip Optical Router Architecture for Future Chip Multiprocessors"

ACM Journal on Emerging Technologies in Computing Systems

7:2, 2011, pp. 9[1-20]

Tens and eventually hundreds of processing cores are projected to be integrated onto future microprocessors, making the global interconnect a key component to achieving scalable chip performance within a given, power envelope. While CMOS-compatible nanophotonics has emerged as a leading candidate for replacing global wires beyond the 16nm timeframe, on-chip optical interconnect architectures are typically limited in scalability or are dependent on comparatively slow electrical control networks.

In this article, we present a hybrid electrical/optical router for future large scale, cache coherent multicore microprocessors. The heart of the router is a low-latency optical crossbar that uses precoded source routing and switch state preconfiguration to transmit cache-line-sized packets several hops in a single clock cycle under contentionless conditions. Overall, our optical router achieves 2X better network performance than a state-of-the-art electrical baseline in a mesh topology while consuming 30% less network power

COMPUTER COMMUNICATION NETWORKS

WEINBLUM
RAYLEIGH DISTRIBUTION
ROGUE WAVES
BREAK WAVES
GENERATION OF WAVE SEQUENCES
WAVE-STRUCTURE INTERACTION
DETERMINISTIC SPAKKEPING TESTS
COMPUTER-AIDED SHIP HANDLING

Clauss, Günther F

(Technical University Berlin)

“The Taming Of the Shrew: Tailoring Freak Wave Sequences for Seakeeping Tests”

Journal of Ship Research

52:3, September 2008, pp. 194-226

Based on the wave focusing technique for the generation of task-related wave packets, a new technique is proposed for the synthesis of tailored design wave sequences in extreme seas. The physical wave field is fitted to predetermined global and local target characteristics designed in terms of significant wave height, peak period, as well as wave height, crest height, and period of individual waves. The generation procedure is based on two steps: First, a linear approximation of the desired wave train is computed by a sequential quadratic programming method that optimizes an initially random phase spectrum for a given variance spectrum. The wave board motion derived from this initial guess serves as a starting point for directly fitting the physical wave train to the target parameters. The subplex method is applied to improve systematically a certain time frame of the wave board motion, which is responsible for the evolution of the response-related design wave sequence. The discrete wavelet transform is introduced to reduce significantly the number of free variables to be considered in the fitting process. Wavelet analysis allows the efficient localization of the relevant information on the electrical control signal of the wave maker in time frequency domain. As the represented technique permits the deterministic generation of design rogue wave sequences in extreme seas, it is well suited for investigating the mechanism of arbitrary wave-structure interactions, including capsizing, slamming, and green water as well as other survivability design aspects. Even worst case wave sequences, such as the *Draupner* New Year wave, can be modeled in the wave tank to analyze the evolution of these events and to evaluate the response of offshore structures under abnormal conditions. This procedure is illustrated by investigations of an offshore lift operation, of the behavior of a semi submersible and an FPSO in tailored freak waves as well as the analysis of ship capsizing in deterministic wave sequences at selected target positions.

WEINBLUM

RAYLEIGH DISTRIBUTION

ROGUE WAVES

FREAK WAVES

GENERATION OF WAVE SEQUENCES

WAVE-STRUCTURE INTERACTION

DETERMINISTIC SEAKEEPING TESTS

COMPUTER-AIDED SHIP HANDLING

Clemens Moser Jian-Jia Chen And Lothar Thiele
(Swiss Federal Institute of Technology (ETH) Zürich)

“AN Energy Management Framework for Energy Harvesting Embedded Systems”

ACM Journal Emerging Technologies in Computing Systems.

6 2, 2010 , pp.7 [7:2-7:21]

Energy harvesting (also known as energy scavenging) is the process of generating electrical energy from environmental energy sources. There exists a variety of different energy sources such as solar energy, kinetic energy, or thermal energy

In recent years, this term has been frequently applied in the context of small autonomous devices such as wireless sensor nodes. In this article, a framework for energy management in energy harvesting embedded systems is presented. As a possible scenario we focus on wireless sensor nodes. That are powered by solar cells. We demonstrate that classical power management solutions have to be reconceived and/or new problems arise if perpetual operation of the systems is required. In particular, we provide a set of algorithms and methods for various application scenarios, including real-time scheduling, application rate control, as well as reward maximization. The goal is to optimize the performance of the application subject to given energy constraints. Our methods optimize the system performance which, for example, allows the usage of smaller solar cells and smaller batteries. Furthermore, we show how to dimension important system parameters like the minimum battery capacity or a sufficient prediction horizon. Our theoretical results are supported by simulations using long-term measurements of solar energy in an outdoor environment. In contrast to previous works, we present a formal framework which is able to capture the performance, the parameters, and the energy model of various energy harvesting systems. We combine different viewpoints, include the corresponding simulation results, and provide a thorough discussion of implementation aspects.

OPERATING SYSTEMS

Coppotelli, Guiliano
(Università degli Studi di Roma)

Dessi, Daniel, Mariani, Riccardo
(Italian Ship Model Basin)

Rimondi, Marcello
(LMS, Leuven, Belgium)

“Output-Only Analysis for Model Parameters Estimation of an Elastically Scaled Ship”

Journal of Ship Research

52:1, March 2008; pp. 45-56

The study of the ship structural response assumes an increasing importance as soon as the structures, characterized by much more lightness, are designed and built for faster vessels. This requisite implies a greater flexibility of the structures themselves, the elastic response of which has to be evaluated with accuracy in order to predict the dynamic behavior. In the present paper, a methodology for the identification of the modal parameters from the measurement of only the responses of a vibrating structures has been developed and applied to an elastically scaled model. This Output-only technique is successfully applied to the segmented model of a real ship towed in the INSEAN linear basin. The broadband random excitation, provided by the loads exerted by an irregular sea pattern, induces a stochastic response of the model, which is monitored with accelerometers. The obtained results not only outline the parametric design dependence of the modal properties on the ship speed, but also suggest a possible practical application of this technique for on-board structural monitoring and fatigue-life prediction.

VIBRATIONS
MODEL TESTING
HYDRODYNAMICS (GENERAL)

Crawford, John C. and Thompson, Kenneth N
(University of North Texas)

Richard A. Dunipace
(Fairchild Semiconductors, Inc.)

“Factors Influencing the Exit Intentions of Manufacturers’ Agents”

Journal of Managerial Issues

23:4, winter 2011, pp 465-490

A model is developed and tested that explored some important determinants of manufactures’ (MA) intentions to exit the agency contract. A central tenet of the model is the role of the agent’s satisfaction with the agency relationship in mediating the effects of additional exogenous constructs on exit decisions. Data are collected from a sample of over 1,000 members of agent organizations in the United States. The model is tested employing a combination of moderated hierarchal regression and structural equation modeling (SEM). Findings suggest that agents’ intentions to exit are based primarily on satisfaction and perceptions of the compensation plan. Significant indirect effects, mediated by satisfaction, are also found for a number of other constructs including aspects of inter-organizational climate, goal congruence between gent and principal, and the agent ‘s perceived expertise.

STUDIES

MANUFACTURERS REPRESENTATIVES

IMPACT ANALYSIS

AGENCY THEORY

EXPIREMENT/THEORETICAL TREATMENT

WHOLESALE INDUSTRY

Crocker, Michael, Niemer, Michael and Hu Sharon X.

(University of Notre Dame)

“A Reconfigurable PLA Architecture for Nanomagnet Logic”

ACM JOURNAL ON EMERGING TECHNOLOGIES IN COMPUTING SYSTEMS

8. 1, 2012 pp. 1 [1:2-1:25]

In order to continue the performance and scaling trends that we have come to expect from Moore's Law, many emergent computational models, devices and technologies are actively being studied to either replace or augment CMOS technology. Nanomagnet Logic (NML) is one such alternative. NML operates at room temperature, it has the potential for low power consumption, and it is CMOS compatible. In this article, we present an NML programmable logic array (PLA) based on previously proposed reprogrammable quantum dot cellular automata PLA design. We also discuss the fabrication and simulation validation of the circuit structures unique to the NML PLAs to other reprogrammable nanotechnologies, and analyze how architectural-level redundancy will effect performance and defect tolerance in NML PLAs. We will use results from this study to a shape a concluding discussion about, which architectures appear to be most suitable for NML.

LOGIC DESIGN

SLAMMING
VIBRATIONS
MODEL TESTING

Dessi, Daniele, Mariani, Riccardo
(Italian Ship Model Basin)

"Analysis and Prediction of Slamming-Induced Loads of a High-Speed Monohull in Regular Waves"

Journal of Ship Research

52:1, March 2008, pp.71-86

In recent years, an important trend in the shipbuilding industry has been the increase in the length and speed of high-speed crafts, thus demanding lighter structures. High-speed vehicles with their increased flexibility are more likely to be excited by impulsive loads, such as slamming, which has been extensively studied and discussed by the scientific community. Nevertheless, ship design still demands plain and reliable procedures (numerical and/or experimental) to evaluate the time-dependent global loads in structural dynamics. In this paper, the aim is to explore the possibility of combining the conservation of fluid momentum with the two-dimensional numerical estimation of the effective wetted length in order to improve the prediction of the impacts loads without losing the simplicity and efficiency of analytical methods. In order to evaluate the prediction capability of the proposed formulation, the numerical computation of the slamming force is based on processing the model test data compared with the hydrodynamic force experimentally identified. The presented analysis is applied to the slamming tests in regular head waves of a segmented model, supported by an elastically scaled beam, of a fast ferry. By using the slamming load obtained with the theoretical model, the elastic response in terms of bending moments is computed and compared with that provided by direct measurement with strain gauges. Finally, the uncertainty analysis relative to both numerical and experimental results is performed.

**SLAMMING
VIBRATIONS
MODEL TESTING**

Dingler, Aaron, Niemier, Michael T., Hu, Xiaobo Sharon, Lent, Evan
(University of Notre Dame)

"Performance and Energy Impact of Locally Controlled NML Circuits"

ACM Journal on Emerging Technologies in Computing Systems

7:1, 2011, pp. 2[3-24]

This article quantitatively considers the performance of nanomagnetic logic circuits within the context of realistic drive circuitry. We also demonstrate how one of the five fundamental tenets of digital logic—preventing unwanted feedback—can be satisfied by realistic drive circuitry. More specifically, different types of multiphase clocks are investigated and compared. Initial projections suggest that even with drive circuitry overhead, nanomagnetic logic can outperform subthreshold CMOS in terms of energy delay product—and paths to lower power exist.

LOGIC DESIGN

PERFORMANCE AND RELIABILITY

Ditkus, Linda V

(University of Phoenix)

Gregory E. Sierra and Brad J Reed

(Southern Illinois University Edwardsville)

"The Role of Managerial Prudence in Bank Loan Loss Provisioning"

Journal of Managerial Issues

23:4, Winter 2011, pp 447-464

This study investigates the role of prudence (management's focus on the long term viability of the organization) in accounting for bank loan loss estimates. The results of this study suggest a relationship between prudence and loan loss provisioning decisions; specifically, bank managers identified as less prudent recognize higher subsequent periodic loan loss provisions. This relationship is interpreted as a response to prior insufficient provisions for known losses and/or delays in recognizing current loan quality deterioration. These findings indicate that less prudent managers are less conservative in their accounting. These findings contribute to the literature by demonstrating that management may convey information about their organizational risk tolerance or other organizational characteristics via their provisioning judgment

BAD DEBTS

BANKS (FINANCE)

BANK LOANS

BANKING INDUSTRY

EMPLOYEE MOTIVATION

MANAGERS

Doctors, Lawrence J

(The University Of New South Wales)

Day, Alexander H., and Clelland, David

(The Universities of Glasgow and Strathclyde)

"Unsteady Effects during Resistance Tests on a Ship Model in a Towing Tank"

Journal of Ship Research

52:4, December 2008; pp. 263-273

It is known that there are oscillations in the wave resistance during constant-velocity phase of a towing-tank resistance test on a ship model. In this work, the unsteady thin-ship resistance theory has been applied to this case. The results have been compared with experiment data obtained using a towing carriage the velocity history which can be programmed. It is demonstrated here that generally excellent correlation exist between the theory and the experiments. In particular, one can predict influence of Froude number, rate of acceleration, and type of smoothing of the acceleration on the characteristics of the oscillations. These characteristics include amplitude, rate of decay, frequency, and phasing of the oscillations in the curve of wave resistance versus time.

HYDRODYNAMICS (GENERAL)

MODEL TESTING

RESISTANCE (GENERAL)

Dornaika, Fadi

University of the Basque Country UPC/EHU, Spain and IKERBASQUE
Basque, Foundation for Science, Spain

Elder, James H.

York University, Canada

"Image Registration for Foveated Panoramic Sensing"

ACM Transactions On Multimedia Computing, Communications And Applications

8 2, 2012 , pp. 17 [17:2-17:20]

This article addresses the problem of registering high-resolution, small field-of-view images with low-resolution panoramic images provided by a panoramic catadioptric video sensor. Such systems may find application in surveillance and telepresence systems that require a large field of view and high resolution at selected locations. Although image registration has been studied in more conventional applications, the problem of registering panoramic and conventional video has not previously been addressed, and this problem presents unique challenges due to (i) the extreme differences in resolution between the sensors (more than a 16:1 linear resolution ratio in our application) and (ii) the resolution inhomogeneity of panoramic images. The main contributions of this article are as follows. First, we introduce our foveated panoramic sensor design. Second, we show how a coarse registration can be computed from the raw images using parametric template matching techniques. Third we propose two refinement methods allowing automatic and near real-time registration between the two image streams. The first registration method is based on matching extracted interest points using a closed form method. The second registration method is featureless and based on minimizing the intensity discrepancy allowing the direct recovery of both the geometric and the photometric transforms. Fourth, a comparison between the two registration methods is carried out, which shows that the featureless method is superior in accuracy. Registration examples using the developed methods are presented.

ANALYSIS OF ALGORITHM AND PROBLEM COMPLEXITY
IMAGE PROCESSING AND COMPUTER VISION
INFORMATION INTERFACES AND PRESENTATION

Droege, Scott., Lane, Michelle and Spiller, Shane
(Western Kentucky University)

"Intersecting Three Muddy Roads: Stability, Legitimacy, and Change"

Journal of Managerial Issues

23:1, March 2011, pp. 96-112

Several decades of research by multiple academic disciplines studying institutional theory, organizational legitimacy, and environmental enactment have resulted in multiplicity of conceptual definitions. While this can be helpful, it may also confuse scholars who are attempting to conduct research in these areas. This narrative reflects on these three interrelated streams of research and provides a useful framework for comparing them. The framework provides a basis for comparing and contrasting these constructs and their attributes. Although this study attempts to provide a theoretical integration, it is also careful to leave theoretical distinction intact. Brief examples are included to clarify the salient features of each theory while integrating their similarities and attending to their differences.

INSTITUTIONAL ECONOMICS
ORGANIZATIONAL SOCIOLOGY
DEFINITION
BIBLIOMETRICS

Du, Shuangxing

(Century Dynamics, ANSYS, Horsham)

Hudson, Dominic A., Price, W Geraint, Temarel, Pandel

(University Of Southampton)

Chen, Ruizhang, Wu, Yousheng

(China Ship Scientific Research Center)

"Wavelet Analysis of Loads on a Flexible Ship Model Traveling In Large-Amplitude Waves"

Journal of Ship Research

52:4, December 2008; pp. 249-262

This study describes an application of a Daubechies wavelet function to analyze measured ship data. The records of a self-propelled, flexible model of the S175 containership moving in waves are analyzed by fast Fourier transform (FTT) and wavelet methods. It is shown that the high-frequency component of the recorded rigid body motions can be omitted without substantially affecting the main features of the data set relating to dynamic loads. The decomposition of the bending moment time history into low- and high-frequency components allows the time of impact occurrence and its amplitude to be easily detected. Such quantities provide important information for the development of generic and realistic transient impact (e.g. slamming, green water) force models for ships traveling in waves.

**WAVELET
FLEXIBLE MODEL
MOTIONS
WAVE LOADS**

Eamon, Christopher D. and Rais-Rohani, Masoud

(Mississippi State University)

"Structural Reliability Analysis of Composite Sail for Virginia Class Submarine"

Journal of Ship Research

52:3, September 2008; pp. 165-174

A structural reliability model is developed for a large composite submarine sail structure. Random variables include material strength and stiffness properties as well as load. Limit states are formulated in terms of material strength parameters and buckling resistance. A series system reliability model that bases structural performance on first component failure is used. A total of 205 random variables and 117 limit states compose the structural system model. Most component reliability indices ranged from 3 to 7, with overall system failure governed by material in-plane shear with a reliability index of 1.84. A probabilistic sensitivity analysis determined that load and material strength were the most significant random variables, while material stiffness parameters were unimportant. Significant computational effort was saved by reducing the number of random variables to the most influential set. The effects of correlation and random variable probability distribution were explored. It was found that correlation has little effect on results, but probability distribution is significant. Recommendations are made to improve performance.

COMPUTERS IN DESIGN

SAFETY

DESIGN (VESSELS)

INFORMATION INTERFACES AND PRESENTATION

INFORMATION SYSTEMS APPLICATIONS

Friedland, Gerald

(International Computer Science Institute)

Yeo, Chuohao

(Institute for Infocomm Research)

Idiap Hung, Hayley

(Research Institute)

"Dialocalization. Acoustic Speaker Diarization and Visual Localization as Joint Optimization Problem"

ACM Transactions On Multimedia Computing, Communications And Applications

6 4, 2010 , pp. 27[27:2-27:18]

The following article a novel audio-visual approach for unsupervised speaker localization in both time and space and systematically its unique properties. Using recordings from a single, low-resolution room overview camera and a single far-field microphone, a state-of-the-art audio only speaker diarization system (speaker localization in time) is extended so that both acoustic and visual models are estimated as part of a joint unsupervised optimization problem. The speaker diarization system first automatically determines the speech regions and estimates "who spoke when," then in a second step, the visual models are used to infer the location of the speakers in the video. We call this process "dialocalization." The experiments were performed on real-world meetings using 4.5 hours of the publicly available AMI meeting corpus. The proposed system is able to exploit audio-visual integration to not only improved the accuracy of the state-of-the-art (audio only) speaker diarization, but also adds visual speaker localization at little incremental engineering and computation costs. The combined algorithm has different properties such as increased robustness, that cannot be observed in algorithms based on single modalities. The article describes the algorithm based on single modalities. The article describes the algorithm, presents benchmarking results explains its properties, and systematically discusses the contribution of each modality

INFORMATION INTERFACES AND PRESENTATION

INFORMATION SYSTEMS APPLICATIONS

Gaillardon, P -E. and Clermidy, F
(CEA, LETI, Minatec Campus)

O'Connor, I. and Liu, J
(University of Lyon)

Amadou, M., and Nicolescu, G.
(Ecole Polytechnique de Montréal)

"Matrix Nanodevice-Based Logic Architectures and Associated Functional Mapping Method"

ACM Journal on Emerging Technologies in Computing Systems

7-1, 2011, pp. 3[1-23]

This article describes a novel computing architecture organization based on nanoscale logic cells. We propose the use of a cluster of matrix arrangement of cells. In order to interconnect such fine-grained logic cells within a matrix, conventional techniques are not suitable due to a large interconnect overhead. Therefore, we propose a method to map functions onto such architectures. We then explore the main parameters of the structure (size of matrices and interconnect topologies) and their impact on the main performance metrics (packing efficiency, speed, and fault tolerance). A cluster packing method also allows the evaluation of the number of matrices used by complex functions and the fill factor for various matrix sizes. The analyses show that this approach is particularly suited for matrices of 16 cells interconnected by modified omega networks. We can conclude that this architecture could improve the scalability of traditional FPGAs by a factor of 8.5

LOGIC DESIGN

Georgina, Prokopiou, Hatzithomas, Leonidas and Petridou, Eugenia
(Panteion University of Thessaloniki)

Ghinea, Georghita Ademoye, Oluwakemi
(Brunel University, U.K.)

“The Sweet Smell of Success: Enhancing Multimedia Applications with Olfaction”

ACM Transactions On Multimedia Computing, Communications And Applications

8 1, 2012 , pp. 2 [2:2-2:17]

Olfaction, or smell, is one of the last challenges which multimedia applications have to conquer. As far as computerized smell is concerned, there are several difficulties to overcome, particularly those associated with the ambient nature of smell. In this article, we present results from an empirical study exploring user's perception of olfaction-enhanced multimedia displays. Findings show that olfaction significantly adds to the user multimedia experience. Moreover, use of olfaction leads to an increased sense of reality and relevance. Our results also show that users are tolerant of the interference and distortion effects caused by olfactory effect in multimedia.

USER/MACHINE SYSTEMS

MULTIMEDIA INFORMATION SYSTEMS

MANAGEMENT STYLE

EMOR

ACHIEVEMENT MOTIVATION

INDUSTRIAL PSYCHOLOGY

Gkorezis, Pangiotis., Hatzithomas, Leonidas and Petridou, Eugenia
(Aristotle University of Thessaloniki)

“The Impact of Leader’s Humor on Employees’ Psychological Empowerment: the
Moderating Role of Tenure”

Journal of Managerial Issues

23 1, March 2011, pp. 83-95

Recently, organizational humor has been at the center of management literature. Authors have examined its significant role in working relationships and job-related attitudes. The present paper attempts to provide useful insights regarding its impact on important organizational outcomes by exploring the influence of leader’s use of (positive and negative) humor on the psychological empowerment of employees. Moreover, it examines the moderating effect of tenure in the above relationships. Data from 101 service employees in U.S. dinner houses show that leader’s humor, both positive and negative, is associated with psychological empowerment. Leader’s use of positive humor has a positive impact while the use of leader’s negative humor exerts a negative effect on employees’ psychological empowerment. Further, tenure indicates a determinative impact on the relationship between leader’s humor and employees’ psychological empowerment. More specifically, the results demonstrate that the more tenured employees respond more strongly to the leader’s use of negative humor with greatly reduced feelings of psychological empowerment. In contrast, new employees are influenced mainly by leader’s use of positive humor with regard to their feelings of psychological empowerment.

MANAGEMENT STYLE

HUMOR

ACHIEVEMENT MOTIVATION

INDUSTRIAL PSYCHOLOGY

Goodwin, Vicki L.
(University of North Texas)

Gomes, João V.P. Inácio, Pedro R. M.
(Nokia Siemens Networks Portugal and University of Beira Interior)

Lakic, Branka
(University of Coimbra and Institute of Telecommunications)

Freire, Marior M.
(University of Beira Interior and Institute of Telecommunications)

Da Silva, Henrique J.A.
(University of Coimbra and Institute of Telecommunications)

Monteiro, Paulo P.
(Nokia Siemens Networks Portugal and Institute of Telecommunications)

“Source Traffic Analysis”

ACM Transactions On Multimedia Computing, Communications And Applications

6 3, 2010 , pp. 21[21:2-21:23]

Traffic modeling and simulation plays an important role in the area of Network Monitoring and Analysis, for it provides practitioners with efficient tools to evaluate the performance of networks and of their elements. This article focus on the traffic generated by a single source, providing an overview of what was done in the field and studying the statistical properties of the traffic produced by a personal computer, including analysis of the autocorrelation structure. Different distributions were fitted to the inter-arrival times, packet sizes and byte count processes with the goal of singling out the ones most suitable for traffic generation.

COMPUTER SYSTEMS ORGANIZATION

Goodwin, Vicki L.

(University of North Texas)

J Lee Whittington and Brian Murray

(University of Dallas)

Tommy Nichols

(Texas Wesleyan University)

“Moderator or Mediator? Examining the Role of Trust in a Transformational Leadership Paradigm”

Journal of Managerial Issues

23 4, Winter 2011, pp 409-425

A field study of 209 leader-follower dyads was conducted to examine the role of trust within the transformational leadership paradigm. Specifically, the goal was to answer the question, “Is trust simply an outcome of transformational leadership or does it serve a more complex role as a moderator or mediator?” Results from the analysis using a bootstrapping technique with structural equation modeling revealed no support for the role of trust as a moderator of the relationship between transformational leadership and a variety of follower outcomes. However, trust fully mediated the relationships between transformational leadership behavior and organizational citizenship behavior, performance, and effective commitment.

STUDIES

LEADERSHIP

TRUST

ORGANIZATIONAL BEHAVIOR

BOOTSTRAP METHOD

MANAGERIAL SKILLS

Gouraly, Tim
(Curtin University)

“Sinkage and Trim of a Fast Displacement Catamaran in Shallow Water”

Journal of Ship Research

52:3, September 2008; pp. 175-183

A theoretical method is put forward for predicting the sinkage and trim of a fast displacement catamaran in shallow water. Special emphasis is placed on the transcritical speed range, where sinkage and trim reach a maximum sinkage and trim of a fast displacement catamaran through the transcritical speed.

CATAMARANS

HYDRODYNAMICS (HULL FORM)

SAFETY

COMPUTER-COMMUNICATION NETWORKS

Gupta, Vishal K., Huang, Rui and Yayla, Ali A.
(State University of New York at Binghamton)

Greenville Armitage and Heyde, Amiel
(Centre for Advanced Internet Architectures, Swinburne
University of Technology, Australia)

“REED: Optimizing First Person Shooter Game Server Discovery using Networks
Coordinates”

ACM Transactions On Multimedia Computing, Communications And Applications

8 2, 2012 , pp. 20 [20:2-20:21]

Online First Person Shooter (FPS) games typically use a client-server communication model, with thousands of enthusiast hosted game servers active at any time. Traditional FPS server discovery may take minutes, as clients create thousands of short lived packet flows while probing all available servers to find a selection of game servers with tolerate round trip time (RTT) REED reduces a client’s probing time and network traffic to 1% of traditional server discovery REED game servers participate in a centralized, incremental calculation of their network coordinates to expedite the discovery of servers with low RTTs.

COMPUTER-COMMUNICATION NETWORKS

Gupta, Vishal K., Huang, Rui and Yayla, Ali A.

(State University of New York at Binghamton)

“Social Capital, collective Transformational Leadership, and Performance: A resource-Based View of Self-Managed Teams”

Journal of Managerial Issues

23 1, March 2011, pp. 31-45

Feng Qiu
This study examines the influence of social capital within self-managed teams on performance. Despite the growing popularity of the idea of social capital in teams, there is limited research on how social capital is related to performance. Invoking a resource-based framework. This study examines the relationship between social capital and performance in a longitudinal sample of teams managing athletic footwear companies in a business simulation context. It conceptualize social capital as a higher order construct with three dimensions: structural, relational, and cognitive, Results reveal that social capital interacts with collective transformational leadership in affecting performance. Overall, the study demonstrates that social capital does add values to the team, and within the proper context, facilitates superior team performance.

SOCIAL CAPITAL-UNITED STATES

SELF-DIRECTED WORK TEAMS

HUMAN PERFORMANCE

ORGANIZATIONAL BEHAVIOR

CORRELATION ANALYSIS-STUDIES

EXPERIMENTAL / THEORITICAL TREATMENT-UNITED STATES

COMPUTER COMMUNICATION NETWORKS

Hengli, Michael B.
(University of Central Arkansas)

Hao Yin, Xuening Liu, Tongyu Zhan
(Tsinghua University)

Vyas Sekar
(Carnegie Mellon University)

Feng Qui
(Beijing Blue I.T Technologies Co., Ltd)

Hui Zhang,
(Carnegie Mellon University)

Bo Li
(Hong Kong University of Science and Technology)

“LiveSky: Enhancing CDN with P2P”

ACM Transactions On Multimedia Computing, Communications And Applications

6 3, 2010 , pp. 16[16:2-16:19]

We present the design and deployment experiences with LiveSky, a commercial hybrid CDN-P2P live streaming system, which inherits the best of both CDN and P2P. We address several key challenges including: 1) ease of integration with existing CDN infrastructure, 2) dynamic resource scaling while guaranteeing quality-of-service, 3) providing good user experience, ensuring network friendliness and upload fairness. LiveSky has been used for several large-scale live streaming events in China. Our evaluation results from real-world indicate that such a hybrid CDN-P2P system provides quality and performance comparable to a CDN and effectively scales the system capacity.

COMPUTER COMMUNICATION NETWORKS

WORK AND FAMILY

WORK LIFE BALANCE

SOCIAL TRENDS AND CULTURE

Hargis, Michael B.

(University of Central Arkansas)

Lindsey M. Kotrba

(Denison Consulting)

Ludmila Zhdanova and Boris B. Baltes

(Wayne State University)

“What’s Really Important? Examining the Relative Importance of Antecedents to Work-Family Conflict”

Journal of Managerial Issues

23·4, Winter 2011, pp 386-408

Work-family conflict has become a major focus of research among organizational scientists and a concern for the millions of adults who have to balance the dual of work and family life. Prior research has identified important antecedents to work-family conflict (WFC); however, little is known about the relative contribution of these antecedents across types and forms of WFC. This study extends prior research by exploring the relative importance of theoretically meaningful antecedents across different types (time-, strain-, and behavior based) and forms (family-to-work and work-to-family) of WFC. The study’s results, based on the sample of working adults (N=289), suggest that negative activity and job stressors are generally the most important antecedents accounting for the majority of predicted variance (on average, accounting for 40% and 29% of variance respectively). Other variables, such as family stressors and number of children, are relatively less important (on average, accounting for 7% and 1% of variance respectively).

JOB STRESS—RESEARCH

WORK AND FAMILY

WORK LIFE BALANCE

SOCIAL TRENDS AND CULTURE

Haron, Nor Zaidi

(Delft University of Technology and Universiti Teknikal Malaysia Melaka)

Hamdioui, Said

(Delft University of Technology)

“Redundant Residue Number System Code for Fault-Tolerant Hybrid Memories”

ACM Journal on Emerging Technologies in Computing Systems

7 1, 2011, pp. 4[1-19]

Hybrid memories are envisioned as one of the alternatives to existing semiconductor memories. Although offering enormous data storage capacity, low power consumption, and reduced fabrication complexity (at least for the memory cell array), such memories are subject to a high degree of intermittent and transient faults leading to a reliability issues. This article examines the use of Conventional Redundant Residue Number System (C-RRNS) error correction code, which has been extensively used in digital signal processing and communication, to detect and correct intermittent and transient cluster faults in hybrid memories. It introduces a modified version of C-RRNS, referred to as 6M-RRNS, to realize the aims at lower area overhead and performance penalty. The experimental results show that 6M-RRNS realizes a competitive error correction capability, provides larger data capacity, and offers higher decoding performance as compared to C-RRNS and Reed-Solomon (RS) codes. For instance, for 64-bit hybrid memories at 10% fault rate, 6M-RRNS has 98.95% error correction capacity, which is 0.35% better than RS and 0.4% less than C-RRNS. Moreover, when considering 1Tbit memory, 6M-RRNS offers 4.35% more data storage capacity than RS and 11.41% more than C-RRNS. Additionally, it decodes up to 5.25 times faster than C-RRNS.

PERFORMANCE AND RELIABILITY

COMPUTER-COMMUNICATION NETWORKS

Hefeda, Mohamed
(Simon Fraser University)

Hsu, Cheng-Hsin
(National Tsing Hua University)

“Design and Evaluation of a Testbed for Mobile TV Networks”

ACM Transactions On Multimedia Computing, Communications And Applications
8 1, 2012 , pp. 3 [3:2-2:23]

This article presents the design of a complete, open source, testbed for broadcast networks that offer mobile TV services. Although basic architectures and protocols have been developed for such networks, detailed performance tuning and analysis are still needed, especially when these networks scale to serve many diverse TV channels to numerous subscribers. The detailed performance analysis could also motivate designing new protocols and algorithms for enhancing future mobile TV networks. Currently, many researchers evaluate the performance of mobile TV networks using simulation and/or theoretical modeling methods. These methods, while useful for early assessment, typically abstract away many necessary details of actual, fairly complex, networks. Therefore, an open-source platform for evaluating new ideas in a real mobile TV network is needed. This platform is currently not possible with commercial products, because they are solid as black boxes without the source code. In this article, we summarize our experiences in designing and implementing a testbed for mobile TV networks. We integrate this article , we summarize our experiences in designing and implementing a testbed for mobile TV networks. We integrate off-the-shelf hardware components with carefully designed software modules to or realize a scalable testbed that covers almost all aspects of real networks. We use our testbed to empirically analyze various performance aspects of mobile TV networks and validate/refute several claims made in the literature as well as discover/quantity multiple important tradeoffs.

COMPUTER-COMMUNICATION NETWORKS

Henry, Michael B. and Nazhandali, Leyla
(Virginia Technology)

“From Transistors to NEMS. Highly Efficient Power-Gating of CMOS Circuits”

**ACM JOURNAL ON EMERGING TECHNOLOGIES IN COMPUTING
SYSTEMS**

8: 1, 2012 pp. 2 [2:2-2.18]

A rapidly growing class of battery constrained electronic applications are those with very long sleep periods, such as structural health monitoring systems, biomedical plants, and wireless border security cameras. The traditional method for sleep-mode power reduction, transistor power gating, has drawbacks, including performance loss and residual leakage. This article presents a thorough evaluation of a new nanotechnology enabled power gating structure, CMOS-compatible NEMS switches, in the presence of aggressive supply voltage scaling. Due to the infinite off-resistance of the NEMS switches, the average power consumption of an FFT processor performing 1FFT per hour drops by around 30 times compared to a transistor-based power gating implementation. Additionally, the low on resistance and nanoscale size means even with current prototypes, the overhead is as much as 5 times lower, with much room for improvement. The major drawback of NEMS switches is the high activation voltage, which can be many times higher than typical CMOS supply voltages. We demonstrate that with a charge pump, these voltages can be generated on-die, and the energy and bootup delay overhead is negligible compared to the FFT processing itself. These results show that NEMS-based power-gating warrants further investigation and the fabrication of a prototype.

INTEGRATED CIRCUITS

LOGIC DESIGN

Himanshu Thapliyal and Nagarajan Ranganathan

(University of South Florida, Tampa)

“Design of Reversible Sequential Circuits Optimizing Quantum Cost, Delay, and Garbage Outputs”

ACM Journal Emerging Technologies in Computing Systems.

6 3, 2010 , pp. 14[14:2-14:30]

Reversible logic has shown potential to have extensive applications in emerging technologies

such as quantum computing, optical computing, quantum dot cellular automata as well as ultra low power VLSI circuits. Recently, several researchers have focused their efforts on the design focus has been on optimizing the number of reversible gate and the garbage outputs. The number of reversible gates is not a good metric of optimization as each reversible gate is of different type and computational complexity and thus will have a different quantum and cost delay. The computational complexity of a reversible gate can be presented by its quantum cost. Further, delay constitutes an important metric, which has not been addressed in prior works on reversible sequential circuits as a design metric to be optimized in this work, we present novel designs of reversible sequential circuits that

are optimized in terms of quantum cost, delay and the garbage outputs. The optimized designs of several reversible sequential circuits are presented including the D Latch, the T latch and the SR latch, and their corresponding reversible master-slave-flip-flop designs. The proposed master-save-flip-flop designs have the special property that they don't require the inversion of the clock for use in the slave latch. Further, we introduce a novel strategy of cascading a Fredkin gate at the outputs of a reversible latch to realize the designs of the Fredkin gate based asynchronous set/reset D latch and the master-slave D flip-flop. Finally, as an example of complex reversible sequential circuits the reversible logic design of the universal shift register is introduced. The proposed reversible sequential designs were verified through simulations using Verilog HDL and simulations results are presented.

LOGIC DESIGN

Huang, Jiun Long and Chiu, Shih Chuan

(National Chiao Tung University)

Shan, Man Kwan

(National Chengchi University)

“Towards an Automatic Music Arrangement Framework”

ACM Transactions On Multimedia Computing, Communications And Applications

8 1, 2012 , pp. 8 [8:2-8:23]

Score reduction is a process that arranges music for a target instrument by reducing original music. In this study we present a music arrangement framework that uses score reduction to automatically arrange music for a target instrument. The original music is first analyzed to determine the type of arrangement element of each section, then the phrases are identified and each is assigned a utility according to its type of arrangement element. For a set of utility-assigned phrases, we transform the music arrangement into an optimization problem and propose a phrase selection algorithm. The music is arranged by selecting appropriate phrases satisfying the playability constraints of a target instrument. Using the proposed framework, we implement music arrangement system for the piano. An approach similar to Turing test is used to evaluate the quality of the music arranged by our system. The experiment results show that our system is able to create viable music for the piano.

**INFORMATION INTERFACES AND PRESENTATION
COMPUTER APPLICATION**

Jianwei Dai and Lei Wang
(University of Connecticut)

Fabrizio Lombardi
(Northeastern University)

“An Information- Theoretic Analysis of Quantum-Dot Quantum-Dot Cellular Automata for Detect Tolerance”

ACM Journal Emerging Technologies in Computing Systems.

6 2, 2010 , pp. 9[9.2-9.19]

Quantum-dot cellular automata (QCA) has been advocated as a promising emerging nanotechnology for designing future nanocomputing systems. However at device level , the large number of expected defects represents a significant hurdle for reliable commutation in QCA-based systems. In this paper we represent an information theoretic approach to investigate the relationship between detect tolerance and redundancy in QCA devices. By modeling detect-prone QCA

Devices. By modeling defect-prone QCA devices as unreliable information processing media. We determine the information transfer capacity as bound on the reliability that QCA devices can achieve. The proposed method allows to evaluate the effectiveness of redundancy-based tolerance in an effective and quantitative manner Pg 9[9.2-9.19]

PERFORMANCE and RELIABILITY

ARTIFICIAL INTELLIGENCE

Junwen Wu and Mohan M. Trivedi
(University of California, San Diego)

“An Eye Localization, Tracking and Blink Pattern Recognition System. Algorithm and Evaluation”

ACM Transactions On Multimedia Computing, Communications And Applications
6 2, 2010 , pp. 8[8:2-8:23]

This study is to investigate the fundamental problems of, (1) facial feature detection and localization, especially eye features; and (2) eye dynamics, including tracking and blink detection. We first describe our contribution to eye localization. Following that, we discuss a simultaneous eye tracking and blink detection system. Facial feature detection is solved in a general object detection framework and its performance for eye localization is presented. A binary tree representation based on feature dependency partitions the object feature space in a coarse to fine manner. In each compact feature subspace, independent component analysis (ICA) is used to get the independent sources, whose probability density functions (PDFs) are modeled by a Gaussian mixtures.

When applying this representation for the task of eye detection, a subwindow is used to scan the entire image and each obtained image patch is examined using Bayesian criteria to determine the presence of an eye subject. After the eyes are automatically located with binary tree-based probability learning, interactive particle filters are used for simultaneously tracking the eyes and detecting the blinks. The particle filters use classification-based observation models, in which the posterior probabilities are evaluated by logistic regressions in tensor subspaces. Extensive experiments are used to evaluate the performance from two aspects (1) blink detection rate and the accuracy of blink duration in terms of the frame numbers; (2) eye tracking accuracy. We also present an experimental setup for obtaining the benchmark data in tracking accuracy evaluation. The experimental evaluation demonstrate the capability of this approach.

ARTIFICIAL INTELELLIGENCE

Karagozlu, Necmi and Fuller, Anne W
(California State University, Sacramento)

Justin Wenck, Jamie Collier, Jeff Siebert And Rajeevan Amirtharajah
(University of California, Davis)

Scaling Self-Timed Systems Powered by
“Mechanical Vibration Energy Harvesting”

ACM Journal Emerging Technologies in Computing Systems.

6 2, 2010 , pp. 5[5:2-5:24]

Passive energy harvesting from mechanical vibration has wide application in wearable devices and wireless sensors to complement or replace batteries. Energy harvesting efficiency can be increased by eliminating AC/DC conversion. A test chip demonstrating self-timing power-on reset circuitry, and dynamic memory for energy harvesting AC voltages has been designed in 180 nm CMOS and tested. An energy scalable DSP architecture implements FIR filters that consume as little as 170 Pj per output sample. The on-chip DRAM retains data for up to 28 ms while register data is retained down to supply voltage of 153 mV. Circuit operation is confirmed for supply frequencies between 60 Hz and 1 kHz with power consumption below 130 μ W. Reaching the limits of miniaturization will require approaching the limits of power dissipation. We extrapolate from this DSP architecture to find the minimum volume required for mechanical vibration energy harvesting sensors.

INTEGRATED CIRCUITS

STUDIES

COMPETITIVE ADVANTAGE

STRATEGIC MANAGEMENT

MANAGEMENT THEORY

EXPERIMENT-THEORETICAL TREATMENT

PLANNING

ORGANIZATIONAL BEHAVIOR

UNITED STATES

Karagozolu, Necmi and Fuller, Anne W
(California State University, Sacramento)

“Strategic Aggressiveness: The Effects of Gain-Thrust Schema and Core Stakeholder Saliency”

Journal of Managerial Issues

23:3, fall 2011, pp 301-322

Growing research has emphasized the antecedents and consequences of competitive actions. Authors in this research stream have generally combined strategic and tactical actions in defining competitive actions. Prior work has also built from prospect theory which was developed for individual behavior and may not be well adapted to complex organizational situations. This research addresses these gaps in prior work first by focusing exclusively on strategic actions. Strategic actions as a standalone variable are important because they involve substantial resource commitments, which are irreversible. Second, rather than use a foundation of prospect theory, this study argues that senior managers adopt a “gain-thrust schema” in today’s highly competitive and dynamic business landscape. This schema calls for aggressive strategic actions to gain and sustain competitive advantages. The aggressive strategic actions, in turn, may become susceptible to the forces of momentum, which may lead to exorbitant aggressiveness with negative performance consequences. Contrary to the prediction by the prospect theory, good past performance is a catalyst for aggressive strategic actions. These arguments are articulated in the backdrop of a theoretical framework and tested via four hypotheses. The results are, for the most part, in the predicted direction.

STUDIES

COMPETITIVE ADVANTAGE

STRATEGIC MANAGEMENT

MANAGEMENT THEORY

EXPERIMENT-THEORITICAL TREATMENT

PLANNING

ORGANIZATIONAL BEHAVIOR

UNITED STATES

Kocak, T and Pradhan
(The University of Bristol)

“Introduction to Design Techniques for Energy Harvesting”

ACM Journal Emerging Technologies in Computing Systems.

6 2, 2010 , pp. 4

There is growing interest in emerging energy harvesting methods, which have become more realistic in recent years. Thus energy scavenging approaches are now considered real contenders as an alternative for powering ubiquitously deployed mobile and wireless electronic devices such as sensor network nodes.

Low-power and energy-efficient circuits and systems have always attracted attention, however, there is a significant increase in demand for their usage and research to improve them in recent years. This demand is driven by several factors such as increasing energy costs for medium-to-large systems and the lack of sufficient battery power for ever increasing functionality of small and mobile devices. Further, mobility makes energy harvesting even more crucial.

This special issue reports the recent advances in the emerging energy harvesting area as well as in energy-efficient circuits and systems. In the first article by Wenck et al., the authors propose techniques to exploit the AC nature of mechanical vibration energy harvesting to increase efficiency and decrease cost. The techniques cover self-timed circuits for maintaining the timing constraints in wide voltage variations; fast power-on-reset circuits to initialize DSP pipelines; and dynamic memories to keep state information across supply cycles.

The article by Wang et al. discusses design considerations of sub-mw indoor light energy harvesting for wireless sensor systems. A photovoltaic-panel-based energy harvesting is chosen for the wireless sensor systems design. The authors employ a maximum power point tracking scheme to improve the power

INTEGRATED CIRCUITS

Krasman, Joe

(University of Ontario Institute of technology)

“Taking Feedback-Seeking to the Next Level. Organizational Structure and Feedback-Seeking Behavior*”

Journal of Managerial Issues

23 1, March 2011 , pp. 9-30

Research has shown that proactively seeking feedback about one's work can lead to many positive outcomes including increased job performance, job satisfaction, organizational citizenship behavior, and decreased turnover intentions. This field study examined the manner in which organizational structure influences people to engage in feedback-seeking behavior. The major findings were the following: Feedback-seeking from supervisors was positively related to standardization and hierarchy of authority and negatively related to span of control. The relationship between span and control and feedback-seeking from supervisors was curvilinear and inverse; as the span of control increased, feedback-seeking from supervisors decreased at a decreasing rate. Feedback-seeking from coworkers was positively related to standardization. Feedback-seeking from documentation was positively related to standardization, hierarchy of authority, and formalization. Routinization and participation decision making were not related to feedback-seeking behavior. The dimensions of organizational structure explained 15% of the variation in feedback-seeking from supervisors, 5.7% of the variation in feedback-seeking from coworkers, and 25.7% of the variation in feedback-seeking from documentation.

**COMMUNICATION
ORGANIZATIONAL STRUCTURE
INTERNAL COMMUNICATION
BEHAVIOR IN ORGANIZATIONS**

Lee, Sanghyun ., Comer, Lucette B., Dubinsky, and Kai Schafer, Alan J
"The Role of Emotion in the Relationship Between Costumers and Automobile
Salespeople"

Journal of Managerial Issues

23:2, Summer 2011, pp 206-226

This study examines potential precursor, as well as consequences, of customers' emotions that arise during interaction with automobile salespeople. Perceived attributes of a particular automobile salesperson in the automobile purchasing process are proposed to have an impact on customer emotions. Emotion is posited to affect customers' relationship satisfaction and intention to remain in the relationship. The findings reveal that certain characteristics of automobile sales personnel do indeed customer emotion. Automobile salesperson trustworthiness, empathy, and professional appearance are observed to positively related to customers' positive emotion. An inverse association between automobile salesperson trustworthiness and accessibility, and customers' negative emotion is shown. In addition, both positive and negative costumer emotion are found to be related to relationship satisfaction. Results further indicate that customers are more likely to maintain their relationship with the automobile salesperson when they are more satisfied with that relationship.

EMOTION
AUTOMOBILE INDUSTRY
CLIENT RELATIONSHIPS
TRANSPORTATION EQUIPMENT INDUSTRY
SALES AND SELLING
PUBLIC RELATIONS

Liguori, Eric W and Sauley, Kerry S. PhD

(Louisiana State University)

Shannon G. Taylor, PhD, Donald H. Kluemper, PhD

(Northern Illinois University)

Sungwon Choi, PhD

(Yonsei University at Wonju)

“Testing Measures of Equity Sensitivity for Resistance to Response Distortion”

Journal of Managerial Issues

23 1, March 2011, pp. 46-61

Equity sensitivity research has struggled to accumulate a coherent body of findings consistent with equity theory tenets, due in part to problems concerning the construct's measurement. Inaccurately measuring one's equity preferences may affect the validity of predictions made from distorted scores. Employing a within-subjects design with two independent samples, the present study compares the resistance of various equity sensitivity measures to response distortion. Study participants completed surveys under conditions of low either moderate (in sample 1) or high (in sample 2) distortion. Findings suggest newer measurement approaches are more resistant to response distortion than traditional measurement of equity sensitivity

OUTPUT

BEHAVIOR IN ORGANIZATION

JOB SATISFACTION

INFORMATION STORAGE RETRIEVAL

INFORMATION SYSTEMS APPLICATIONS

INFORMATION INTERFACES AND REPRESENTATION

Li, Zheng, Mohamed, Mourafi, Chen, Xi, Zhai, Hongyu, Mickelson, Aina, Wang, J.,
Vachharajani, Manish

Lin, Yu-Ru Sundaram, Hari De Choudhury, Munmun and Kelliher, Aisling
(Arizona State University)

“Discovering Multirelational Structure in Social Media Streams”

ACM Transactions On Multimedia Computing, Communications And Applications

8 1, 2012 , pp. 4 [4:2-4:28]

In this article, we present a novel algorithm to discover multirelational structures from social media streams. A media item such as photograph exist as part of a meaningful interrelationship among several attributes, including time, visual content, users, and actions. Discovery of such relational structures enables us to understand the semantics of human activity and has applications and content organization, recommendation algorithms, and exploratory social network analysis. We are proposing a novel nonnegative matrix factorization framework to characterize relational structures of group photo streams. The factorization incorporates image content features and contextual information. The idea is to consider a cluster as having similar relational patterns; each cluster consists of photos relating to similar content or context. Relations represent different aspects of the photo stream data, including visual content, associated tags, photo owners, and post times. The extracted structures minimize the mutual information of the predicted joint distribution. We also introduce a relational modularity function to determine the structure cost penalty, and hence determine the number of clusters. Extensive experiments on a large Flickr dataset suggest that our approach is able to extract meaningful relational patterns from group of photo streams. We evaluate the utility of the discovered structures through a tag prediction task and through a user study. Our results show that our method based on relational structures, outperforms baseline methods including feature and tag frequency based techniques, by 35%-2%. We have conducted a qualitative user study to evaluate the benefits of our framework in exploring group photo streams. The study indicates that users found the extracted clustering results clearly represent major themes in a group; the clustering results not only reflect how users describe the group of data but often lead the users to discover the evolution of the group activity

INFORMATION STORAGE RETRIEVAL

INFORMATION SYSTEMS APPLICATIONS

INFORMATION INTERFACES AND REPRESENTATION

Li, zheng, Mohamed, Moustafa, Chen, Xi, Zhou, Hongyu, Mickelson, Alan, Shang, Li, Vachharajani, Manish

(University of Colorado at Boulder)

“Iris: A Hybrid Nanophotonic Network Design for High-Performance and Low-Power On-Chip Communication”

ACM Journal on Emerging Technologies in Computing Systems

7:2, 2011, pp. 8[1-22]

On-chip communication, including short, often multicast, latency-critical coherence and synchronization messages, and long, unicast, throughput-sensitive data transfer, limits the power efficiency and performance scalability of many-core chip multiprocessor systems. This article analyzes on-chip communication challenges and studies the characteristics of existing electrical and emerging nanophotonic on-chip network, is thus introduced. Iris’s circuit-switched subnetwork supports throughput-sensitive data transfer. Iris’s optical-antenna-array-based Broadcast-multicast subnetwork optimizes latency-critical traffic and supports the path setup of circuit-switched communication. Overall, the proposed nanophotonic network design offers an on-chip communication backplane that is power efficient while demonstrating low latency and high throughput.

PROCESSOR ARCHITECTURES

INFORMATION INTERFACES AND PRESENTATION

INFORMATION SYSTEMS APPLICATIONS

MODELS AND PRINCIPLE

Mafujur Rahman, Abu Saleh

(University of Ottawa)

Hossain, M anwar

(University of Ottawa, King Saud University)

Saddik, Abdulmoltaleb El

(University of Ottawa)

“Spatial-Geometric Approach to Physical Mobile Interaction Based on Accelerometer and IR Sensory Data Fusion”

ACM Transactions On Multimedia Computing, Communications And Applications

6 4, 2010 , pp. 28[28:2-28:23]

Interaction with the physical environment using mobile phones has become increasingly desirable and feasible. Nowadays mobile phones are being used to control different devices and access information/services related to those devices. To facilitate such interactions, devices are usually marked with RFID tags or visual markers, which read by a mobile phone equipped with an integrated RFID reader or camera to fetch related information about those objects and initiate further actions. This article contributes in this domain of mobile physical interaction; however, using a spatial-geometric approach for interacting with indoor physical objects and artifacts instead of RFID based solutions. Using this approach, a mobile phone can point from a distance to an annotated object or a spatial subregion of that object for the purpose of interaction. The pointing direction and location is determined based on the fusion of IR camera and accelerometer data, where the IR cameras are used to calculate the 3D position of the mobile phone users and the accelerometer in the phone provides its tilting and orientation information. The annotation of objects and their subregions with which ,mobile phone interacts is performed by specifying their geometric coordinates and associating related information or service with them. We perform experiment in a technology-augmented smart space and show the applicability and potential of the proposed approach.

INFORMATION INTERFACES AND PRESENTATION

INFORMATION SYSTEMS APPLICATIONS

MODELS AND PRINCIPLE

Maki, Kevin J., Troesch, Armin W., and Beck, Robert F
(University of Michigan)
"Experiments of Two-Dimensional Transom Stern Flow"
Journal of Ship Research
52:4, December 2008; pp. 291-300

Measurements of the free-surface behind a backward facing step are made using laser-induced fluorescence and a digital video camera. Tests are conducted for two Reynolds numbers and a free range of Froude numbers. An edge of detection algorithm is used to locate the free surface from the digital images, and the ensemble images are used to calculate the mean and root mean square of the elevation. The results of amplitude, length, and steepness are determined from the mean profiles and compared to existing potential flow theories. It is found that the potential flow theories overpredict the real fluid measured mean-wave amplitude. The experimentally determined wavelength is much shorter than the nominal strength, and an existing stream function theory is implemented to explain how the viscous wake acts to shorten the steady wavelength.

HYDRODYNAMICS (GENERAL)

WAKE

WAVES

INTERNAL COMMUNICATION

WORK BEHAVIOR

EMOTION

ORGANISATION RESEARCH

Marler, Laura E., Cox, Susie S., Simmering, Marcia J., Bennett, Dr Rebecca J and Fuller, Jerry Bryan

“Exploring the Role of Touch and Apologies in Forgiveness of Workplace Offenses”

Journal of Managerial Issues

23:2, Summer 2011, pp144-163

Due to concerns about sexual harassment, many supervisors are fearful of using touch as a way to enhance their communication effectiveness (Richmond and McCroskey, 2004). This study challenges the notion that the use of touch in organizations is “all bad” by investigating the possibility that supervisors may be able to touch their subordinates in ways that lead to positive outcomes. The authors conduct a scenario-based study with a quasi-experimental research design examining whether the use of touch in an apology would relate to perceptions of apology sincerity and perceptions of willingness to forgive. Three hundred and five participants are asked to watch one of three videos in which the use of touch during an apology for an offense was manipulated. Findings suggest the use of touch in an apology (a handshake or pat on the back) was positively related to observer perceptions of apology sincerity and perceptions of supervisor support. Further, results indicate that perception of supervisor support had a mediating effect on the relationship between touch and perceptions of apology sincerity. The findings provide initial evidence that touch can be used positively in the workplace to foster positive reactions.

INTERNAL COMMUNICATION

WORK BEHAVIOR

EMOTION

ORGANISATION RESEARCH

Marshall, Damien Mcloone, Séamus Ward, Tomās
(National University of Ireland)

“Optimizing Consistency by Maximizing Bandwidth Usage in Distributed Interactive Applications”

ACM Transactions On Multimedia Computing, Communications And Applications

6 4, 2010 , pp. 30 [30:2-30:23]

A key factor determining the success of a Distributed Interactive Application (DIA) is the maintenance of a consistent shared virtual world. To help maintain consistency, a number of Information Management techniques have been developed. However, unless carefully tuned to the underlying network, they can negatively impact on consistency by maximizing available bandwidth usage in DIAs. This algorithm operates by estimating bandwidth from trends in network latency, and modifying data transmission rates to match the estimated value. Results presented within demonstrate that this approach can help optimize consistency levels in DIA.

SIMULATION AND MODELLING

COMPRESSIVE ULTIMATE STRENGTH
STIFFENED PLATE
IMPERFECTION
INITIAL DEFLECTION
WELDING RESIDUAL STRESS
NONLINEAR FINITE ELEMENT METHOD

Masaoka, Koji
(Osaka Prefecture University)

Mansour, Alaa
(University of California)

“Compressive Strength of Stiffened Plates with Imperfections: Simple Design Equations”

Journal of Ship Research

52:3, September 2008; pp. 227-337

The behavior and ultimate compressive strength of stiffened plates with imperfections have been investigated in this paper using a nonlinear finite element method. The imperfections considered consisted of initial deflection and residual stresses. Several types of initial deflections were investigated, including those that may initiate stiffener column buckling and stiffener tripping. Extensive parametric study was conducted in order to systematically determine the impact of these initial imperfections on the ultimate compressive strength of stiffened plates of various geometric properties and stiffener shapes. The objective study was to develop simple design equations for determining ultimate strength based on finite element parametric study. The developed algebraic equations reflect the impact of imperfections on ultimate strength. A Perry-Robertson type equation was developed to incorporate the influence of the imperfections. It was found that under certain conditions a hybrid type mode of failure was necessary to accurately represent the behavior of stiffened plates with imperfections, in addition to the usual plate and stiffener failure modes. It was also found that column buckling type initial deflection is the most important form of imperfection.

COMPRESSIVE ULTIMATE STRENGTH
STIFFENED PLATE
IMPERFECTION
INITIAL DEFLECTION
WELDING RESIDUAL STRESS
NONLINEAR FINITE ELEMENT METHOD

Mehdi Saeedi, Morteza Saheb Zamani

Mehdi Sedighi and Zahra Sasanian

(Amirkabir University of Technology)

“Reversible Circuits Synthesis Using a Cycle-Based Approach”

ACM Journal Emerging Technologies in Computing Systems.

6 3, 2010 , pp. 13[13:2-13:26]

Reversible logic has applications in various research areas, including signal processing.

Cryptography and quantum computation. In this article, direct NCT-based synthesis of a given k -cycle-based synthesis scenario is examined. To this end, a set of seven building blocks is proposed that reveals the potential of direct synthesis a given permutation to reduce both quantum cost and average runtime. To synthesize a given large cycle, we propose a decomposition algorithm to extract the suggested building blocks from the input specification. Then a synthesis method is introduced that uses the building blocks and the decomposition algorithm. Finally, a hybrid synthesis framework is suggested that uses the proposed cycle-based synthesis method in conjunction with one of the recent NTC-based synthesis approaches which is based on Reed-Muller (RM) Spectra.

The time complexity and the effectiveness of the proposed synthesis approach are analyzed in detail. Our analyses show that the proposed hybrid framework leads to a better quantum cost in the worst-case scenario compared to the previously presented methods. The proposed framework always converges and typically synthesizes a given specification very fast compared to the previously to the available synthesis algorithms. Besides, the quantum cost of benchmark functions are improved about 20% on average (55% in the best case)

LOGIC DESIGN

Mei, Tao

(Microsoft Research Asia)

Li, Lusong

(Beihang University)

Hua, Xian-Sheng and Li, Shipeng

(Microsoft Research Asia)

“ImageSense: Towards Contextual Image Advertising”

ACM Transactions On Multimedia Computing, Communications And Applications

8 1, 2012 , pp. 6 [6:2-6:18]

The daunting volumes of community-contributed media contents on the Internet have become one of the primary sources for online advertising. However, conventional advertising treats image and video advertising as general text advertising by displaying relevant ads based on the contents of the Web page, without considering the inherent characteristics of visual contents. This article presents a contextual advertising system driven by images, which automatically relevant ads with an image rather than the entire text in a Web page and seamlessly inserts the ads in the nonintrusive areas within each individual image. The proposed system, called ImageSense, supports scalable advertising of, from root to node, Web sites, pages, and images. In ImageSense, the ads are selected based on not only textual relevance but also virtual similarity, so that the ads yield contextual relevance to both the text in the Web page and the image content. The ad insertion positions are detected based on image salience, as well as face and text detection, to minimize intrusiveness to the user. We evaluate ImageSense on large-scale real word images and Web pages, and demonstrate the effectiveness of ImageSense for online advertising.

INFORMATION STORAGE AND RETRIEVAL

Miles, Sandra Jeanquart W., Mangold, Glynn and Revell, Jennifer
(Murray State University)

Susita Asree

(Winston Saleem State University)

“Assessing the Employee Brand. A Census of One Company”

Journal of Managerial Issues

23·4, Winter 2011, pp 491-507

The employees brand is the image employees present to costumers and other stakeholders. The process of defining the employee brand image and then motivating and empowering employees to project it to others is referred to as the employee branding process. Evidence suggests that financial performance as well as a sustainable competitive advantage can be gleaned when the employee branding process operates correctly. Despite growing interest in the field, the employee branding process has not been empirically tested. Hence, this article presents the results of an empirical study encompassing both an internal assessment of the employee branding process as perceived by costumers. The partial least squares (PLS) method of structural equation modeling is used to determine the casual path to the employee brand. Nine out of the ten hypotheses are supported and the evidence indicates that the desired brand image is perceived by costumers.

BRAND IMAGE

EMPLOYEE MOTIVATION

Arthur G. Money, Harry Agius
(Brunei University)

“ELVIS. Entertainment-Led Video Summaries”

ACM Transactions On Multimedia Computing, Communications And Applications

6 3, 2010 , pp. 17[17:2-17:30]

Video summaries present the user with a condensed and succinct representation of the content of video stream. Usually this is achieved by attaching degrees of importance to low-level image, audio and text features. However, video content elicits strong and measurable physiological responses in the user, which rich indicators of what video content is memorable to or emotionally engaging for an individual user. This article proposes a technique that exploits such physiological responses to a given video stream by a given user to produce Entertainment-Led Video Summaries (ELVIS). ELVIS is made up of five analysis phases which correspond to the analyses of five physiological response measures: electro-dermal response (EDR), heart rate (HR) blood volume pulse (BVP), respiration rate (RR) and respiration amplitude (RA). Through these analyses, the temporal locations of the most entertaining video subsegments, as they occur within the video stream as a whole, are automatically identified. The effectiveness of the ELVIS technique is verified through a statistical analysis of data collected during a set of user trials. Our results show that ELVIS is more consistent than RANDOM, EDR, HR, BVP, RR and RA selections in identifying the most entertaining video subsegments for content in the comedy, horror/comedy, and horror genres. Subjective user reports also reveal that ELVIS video summaries are comparatively easy to understand, enjoyable and informative.

INFORMATION INTERFACES AND PRESENTATION
INFORMATION STORAGE AND RETRIEVAL
MODELS AND PRINCIPLES

Nabil J Sarhan, Mohammad A. Alsamarat and Musab Al- Hadrusi

(Wayne State University)

“Waiting- Time Prediction in Scalable On- Demand Video Streaming”

ACM Transactions On Multimedia Computing, Communications And Applications

6 2, 2010 , pp. 11[11:2-11:24]

Providing video streaming users with expected waiting times enhances their perceived quality-of-service (QoS) and encourages them to wait. In the absence of any waiting-time feedback, users are more likely to detect because of the uncertainty as to when their services will start. We analyze waiting-time predictability in scalable video streaming. We propose two prediction schemes and study their effectiveness when applied with various stream merging techniques and scheduling policies. The results demonstrate that the waiting-time can be predicted accurately, especially when enhanced cost-based scheduling is applied. The combination of waiting-time prediction and cost based scheduling leads to outstanding performance benefits.

COMPUTER COMMUNICATION NETWORKS

PERFORMANCE OF SYSTEMS

SIMULATION AND MODELING

INFORMATION INTERFACES AND PRESENTATION

Namunu C. Maddage

(Royal Institute of Technology) (RMIT)

Khe Chai Sim, Haizhou Li

(Institute for Infocomm Research (I²R))

“World Level Automatic of Music and Lyrics Using Vocal Synthesis”

ACM Transactions On Multimedia Computing, Communications And Applications

6 3, 2010 , pp. 19 [19:2-19:16]

We propose a signal-based approach instead of the commonly used model-based approach, to automatically align vocal music with text lyrics at the word level. In this approach, we use a text-to-speech system to synthesize the singing voice according to the lyrics. In this way, aligning the music signal with the corresponding text lyrics becomes the alignment of two audio signals. This study uses the results of music information modeling and singing voice synthesis. In music information modeling, we study different music representation strategies for music segmentation, music region indexing and region indexing and region content descriptions; in singing voice synthesis, we generate singing voice by making use of music knowledge to approximately the target vocal line in terms of tempo. The experimental results on a 20-song database show 26.3% and 36.1% word level alignment error rates at eight note and sixteenth note alignment tolerances respectively. The proposed approach presents an alternative and effective solution to music-lyrics alignment which may require less training dataset.

INFORMATION INTERFACES AND PRESENTATION

Noblesse, Francis
(Naval Surface Warfare Center Carderock Division)
Delhommeau, Gérard
(Laboratoire de Mécanique des Fluides, École Centrale)
Guilbaud, Michel
(Université de Poitiers)
Yang, Chi
(George Mason University)
"The Rise of Water at a Ship Stem"
Journal of Ship Research
52:2, June 2008, pp. 89-101

The height of water at the stern of a ship hull-with a nonbulbous wedge-shaped bow-that advances at constant speed in calm water is considered using two distinct methods: (1) a theoretical-experimental approach in which elementary fundamental theoretical considerations (dimensional analysis and rudimentary asymptotic considerations in thin-ship, shallow-draft, and deep draft limits) are used in conjunction with experimental measurements for simple hull forms and a rectangular flat plate towed at several yaw and heel angles; and (2) thin-ship theory, that is, a fully analytical approach. Both of these methods yield simple expressions that define the rise of water at a ship stem explicitly-ab initio and without calculations-in terms of the ship speed, draft, and waterline entrance angle. The theoretical-experimental expression and the thin-ship expression are in good agreement except at low Froude numbers and are also in reasonable agreement with experimental measurements.

HYDRODYNAMICS (GENERAL)
HYDRODYNAMICS (HULL FORM)

HISTORY
HYDRODYNAMICS (GENERAL)
HYDRODYNAMICS (PROPULSION)

Nowacki, Horst
(Technical University of Berlin)
"Leonhard Euler and the Theory of Ships"

Journal of Ship Research
52:4, December 2008; pp. 274-290

On April 15, 2007, the scientific world commemorated Leonhard Euler's 300th birthday. Euler's eminent has become famous in many fields: mathematics, mechanics, optics, acoustics, astronomy, and geodesy, even in the theory of music. This article will recall his no less distinguished contributions to the founding of the modern theory of ships. These are not so widely known to the general professional public. In laying this foundation in ship theory, as in other fields, Euler was seeking "first principles, generality, order and above all clarity." This article will highlight those achievements for which we owe him our gratitude. There is no doubt that Leonhard Euler was one of the founders of the modern theory of ships. He raised many fundamental questions for the first time and through all phases of his professional lifetime devoted himself to subjects of ship theory. Thereby he gave a unique profile to this still nascent scientific discipline. Many of his approaches have been lasting, incisive influence on the structure of this field. Some of his ideas have become so much a matter of routine today that we have forgotten their descent from Euler. This article will synoptically review Euler's contributions to the foundation of this discipline, will correlate them with the stages of Euler's own scientific development, embedded in the rich environment of scientific enlightenment in the 18th century, and will appreciate the value of his lasting aftereffects until today. The same example will serve to recognize the fertile field of tension always existing between Euler's fundamental orientation and his desire to make contributions to practical applications, which has remained characteristic of ship theory to the present day. Without claiming completeness in detail, this article aims at giving a coherent overview of Euler's approaches and objectives in this discipline. This synopsis will be presented primarily from the viewpoint of engineering science in its current stage of development.

HISTORY

HYDRODYNAMICS (GENERAL)

HYDRODYNAMICS (PROPULSORS)

Olsen, Dan R. Bunn, Derek Boulter, Trent and Walz, Robert

Interactive Television News

(Brigham Young University)

“Interactive Television News”

ACM Transactions On Multimedia Computing, Communications And Applications

8 2, 2012 , pp. 19 [19:2-19:20]

A new interactive television experience has been created for watching television news. The goal is to create a news experience that is similar to the way people watch television in their living rooms while giving viewers the power to make choices about what they see. We partnered with existing news organizations to create tools consistent with current news production practices. The viewer experience allows selection of the order of news content, skipping unwanted content and exploring stories in more depth. These tools were used to produce seven days of interactive commercial news that were viewed in ten homes.

INFORMATION INTERFACES AND PRESENTATION

PROPELLER

INFLOW

WAKE

TIP VORTEX

FREE SURFACE

IMMERSION DEPTH

Paik, Bu-Geun
(Korea Ocean Research and Development Institute)

Lee, Jung-Yeop, Lee, Sang-Joon
(Pohang University of Science and Technology)

“Effect of Propeller Immersion Depth on the Flow around a Marine Propeller”

Journal of Ship Research

52:2, June 2008; pp. 102-113

The effects of the free surface on the flow around a rotating propeller were investigated experimentally in a circulating water channel by varying the propeller immersion depth. Instantaneous velocity fields were measured using two-frame particle image velocimetry (PIV) technique, at four blade phases. These fields were ensemble averaged to obtain the phase-averaged flow structure of both the inflow and the wake. The flow around the propeller was influenced by the propeller rotation speed, the loading on the blades, and the proximity of the propeller to the free surface. The boundary layers developed on the blade surfaces led to the formation of viscous wake at all immersion depths. As the propeller was moved closer to the free surface, the axial velocity within the slipstream decreased. Interaction between tip vortices and the slip stream seemed to cause the tip vortices to follow an oscillating trajectory. The presence of the free surface greatly affected the wake structure, especially for the propeller immersion depth of $0.6 D$. At small immersion depths, the free surface modified the tip and trailing vortices and the slip stream flow structure downstream of $X/D = 0.3$ in the propeller wake. The present study shows the wake modeling should consider the free surface effects to accurately predict propeller performance or cavitation at small propeller immersion depths.

PROPELLER

INFLOW

WAKE

TIP VORTEX

FREE SURFACE

IMMERSION DEPTH

Pérez, F L., Suárez, J.A., and González, J.M.
(Universidad Politécnica de Madrid)

Clemente, J.A., †
(Navantia Technical Directorate)

“Parametric Generation, Modeling, and Fairing of Simple Hull Lines with the Use of Nonuniform Rational B-Spline Surfaces”

Journal of Ship Research

52.1, March 2008; pp. 1-15

This paper deals with the use of a simple parametric design method applied to simple hull lines, such as sailing ship hulls and round bilge hulls. The described method allows the generation of hull lines that meet hydrodynamic coefficients imposed by the designer, obtaining more flexibility than with normal affine transformations of a parent hull. First, a wire model of the ship stations is made with the use of explicit curves. The method is completed with an automatic surface modeling of the previously generated offsets. The construction of spline curves and their application in the definition of ship lines are reviewed. Approximation of spline curves fitting the data on the stations is made, with special emphasis on the choice of parametrization, which is relevant to increasing the accuracy of the splines. B-spline surface modeling of the hull and the fairing process adapted to maintain certain ship characteristics are described. Some examples of the generation, lofting, and fairing process are presented.

SHIP DESIGN
PARAMETRIC GENERATION
NURBS

INFORMATION STORAGE AND RETRIEVAL

Rodrigo De Oliveira, Mauro Cherubini, Nuria Oliver
(Telefonica Research, Barcelona)

“Looking at Near-Duplicate Videos from a Human-Centric Perspective”

ACM Transactions On Multimedia Computing, Communications And Applications

6 : 3, 2010 ; pp. 15[15:2-15:22]

Popular content in video sharing websites (e.g., YouTube) is usually replicated via identical copies or near-duplicates. These duplicates are usually studied because they pose a threat to site owners in terms of wasted disk space, or piracy infringements. Furthermore, this content might potentially hinder the user's experience in these websites. The research presented in this article focuses around the central argument that there is no agreement on the technical definition of what these near-duplicates are, and, more importantly, there is no strong evidence that users of video sharing websites would like this content to be removed. Most scholars define near-duplicate video clips (NDVC) by means of non-semantic features (e.g., different image/audio quality) while a few also include semantic features (i.e., different videos of similar content.) However, it is unclear what features contribute to the human perception of near-duplicate videos. The findings of four large scale online surveys that were carried out in the context of our research confirm the relevance of both types of features. Some of our findings confirm the adopted definitions of NVDC whereas other findings are surprising: Near-duplicate videos with different image quality, audio quality, or with/without overlays were perceived as NDVC. However, the same could not be verified when videos differed by more than one of these features at the same time. With respect to semantics, it is yet unclear the exact role that it plays in relation to the features that make videos alike. From a user's perspective, participants preferred in most cases to see only one of the NVDC in the search results of a video search query and they were more tolerant to changes in the audio than in the video tracks. Based on all these findings, we propose a new user-centric NVDC definition and present implications for how duplicate content should be dealt with by video sharing Web sites.

INFORMATION STORAGE AND RETRIEVAL

Sararaju P Mohanthy
(University of North Texas)
Dhira K. Pradhan
(University of Bristol)

ULS: A Dual-V_{th}/High-K Nano-CMOS

“Universal Level Shifter for System-Level Power Management”

ACM Journal Emerging Technologies in Computing Systems.

6 : 2, 2010 ; pp. 8[8:2-8:26]

Power dissipation is a major bottleneck for emerging applications, such as implantable systems, digital cameras, and multimedia processors. Each of these applications is essentially designed as an Analog/Mixed-Signal System-on a-Chip (AMS-SoC) These AMS-SoCs are typically operated from a single power-supply source which is a battery providing a constant supply voltage. In order to reduce power dissipation of the AMS-SoCs, multiple-supply voltage and/or variable supply voltage is used as an attractive low-power design approach. In the multiple-/variable-supply voltage AMS-SoCs the use of a DC-to-DC voltage-level shifter is critical. The voltage-level shifter is an overhead when its own proper dissipation is high. In this article a new DC-to-DC voltage-level shifter is introduced that performs level-up shifting, level-down shifting and blocking of voltages and is called Universal Level Shifter (ULS). The ULS is a unique component that reduces dynamic power and leakage of the AMS-SoCs while facilitating their reconfigurability. The system-level architectures for three AMS-SoCs such as Drug Delivery Nano-Electro-Mechanical-System (DDNEMS), Secure Digital Camera (SDC) And Net-centric Multimedia Professor (NMP) are introduced to demonstrate the use the ULS for system-level power management. The article presents a design flow and an algorithm for optimal design of the ULS using a dual-V_{th} high-k technique for efficient realization of ULS.

A prototype ULS is presented for 32nm nano-CMOS technology node. The robustness of the ULS design is examined by performing three of analysis, such as parametric, load, and power. It is observed that the ULS produces a stable output for voltages as low as 0.35V and loads varying from 50 f F to 120 f F. The average power dissipation of the ULS with a 82 f F capacitive load is 5μ W. Pg. 8[8:2-8:26]

Sellers, R. D.

(Kent State University)

T. J. Fogarty and L. Parker

(Case Western Reserve University)

“The Legacy of Social Networks in a Failed Public Accounting Firm”

Journal of Managerial Issues

23:2, summer 2011; pp 227-242

Like other professional service organizations, public accounting firms invest heavily in the social networking of their employees and partners. Although returns on these investments for the firm have been reasonably well-documented, all this work has been conditioned on the assumption of organizational continuity. Informed by the literature on the organizational crisis, this paper addresses the continued trajectory of social networks after the disappearance of the organization that they previously served. Using interview data collected from ex-Arthur Andersen personnel, this case suggests that social networks survive through time and are useful to advancing individual careers. These social networks tend to be reconceptualized as they expand in scope, and are not necessarily fully exploitable by other employing organizations. Implications for professional service firms are offered.

ACCOUNTING SERVICES
SOCIAL NETWORKS

Soares, C. Gomes, Fonseca, N., Pascoal, B.
(Technical university of Lisbon)

Snidario, Lauro Visentini, Ingrid and Foresti, Gian Luca
(University of Udine, Italy)

“Fusing Multiple Video Sensors for Surveillance”

ACM Transactions On Multimedia Computing, Communications And Applications
8 · 1, 2012 ; pp. 7 [7:2-7:18]

Real-time detection, tracking, recognition and activity understanding of moving objects from multiple sensors represent fundamental issues to be solved in order to develop surveillance systems that are able to autonomously monitor wide and complex environments. The algorithms that are needed span therefore from image processing to event detection and behavior understanding, and each of them requires dedicated study and research. In this context, sensor fusion plays a pivotal role in managing information and improving system performance. Here we present a novel fusion framework for combining the data coming from multiple and possibly heterogeneous sensors observing a surveillance area.

IMAGE PROCESSING AND COMPUTER VISION VISION AND SCENE UNDERSTANDING

ABNORMAL WAVES
BREAK WAVES
NON-LINEAR VERTICAL BENDING MOMENTS
TIME DOMAIN SIMULATIONS
EXTREME LOADS

Soares, C. Guedes, Fonseca, N., Pascoal, R.

(Technical university of Lisbon)

“Abnormal Wave-Induced Load Effects in Ship Structures”

Journal of Ship Research

52:1, March 2008; pp. 30-44

The paper presents an approach to determine the global load effects induced on ship structures by abnormal, freak, or episodic waves. It refers to the present procedure of determining extreme values of wave induced responses, including the recent advances in adopting time series of wave elevation as reference design conditions to calculate the wave-induced structural loads on ships in heavy weather. It is shown how this procedure can be extended to account for abnormal or episodic waves. Reference is made to what is presently known about abnormal or freak waves, showing that although it is possible to determine the loads induced by these waves in floating and fixed structures, the present knowledge about the probability of occurrence of these waves is not enough to allow a wave design criterion to be defined in a way consistent with the present probabilistic approaches. However, it is suggested that at the present stage of knowledge it is possible to determine the loads induced by abnormal waves similar to ones that have been measured at various ocean locations and that are thus realistic; a method is described to perform such calculations. Although this information cannot replace the wave-induced loads calculated with the presently established procedures, it can serve as guidance for the design. An application example is presented of a container ship subjected to a wave trace that includes an episodic wave that was measured during a severe storm in Central North Sea. The measured wave time history is modified in order to investigate the influence of the wave steepness on the induced vertical motions and loads. The loads induced by the abnormal wave are compared for the first time with extreme values from long-term distributions.

ABNORMAL WAVES

FREAK WAVES

NONLINEAR VERTICAL BENDING MOMENTS

TIME DOMAIN SIMULATIONS

EXTREME LOADS

INFORMATION STORAGE AND RETRIEVAL

DATABASE MANAGEMENT

Steven C.H. Hoi Nanyang
(Technological University)

Wei Liu, Shih-Fu Chang
(Columbia University)

“Semi-Supervised Distance Metric Learning for Collaborative Image Retrieval and Clustering”

ACM Transactions On Multimedia Computing, Communications And Applications

6 · 3, 2010 , pp. 18[18:2-18:26]

Learning a good distance metric plays a vital role in many multimedia retrieval and data mining tasks. For example, a typical content-based image retrieval (CBIR) system often relies on an effective distance metric to measure similarity between any two images. Conventional CBIR systems simply adopting Euclidean distance metric often fail to return satisfactory results mainly due to the well-known semantic gap challenge. In this article, we present a novel framework of Semi-Supervised Distance Metric Learning for learning effective distance metrics by exploring the historical relevance feedback log data of a CBIR system and utilizing unlabeled data when log data are limited and noisy. We formally formulate the learning problem into a convex optimization task and then present a new technique named as “Laplacian Regularized Metric Learning” (LRML). Two efficient algorithms are then proposed to solve the LRML task. Further, we apply the proposed technique to two applications. One direct application is for Collaborative Image Retrieval (CIR), which aims to explore the CBIR log data for improving the retrieval performance of CBIR systems. The other application is for Collaborative Image Clustering (CIC), which aims to explore the CBIR log data for enhancing the clustering performance of image pattern clustering tasks. We conduct extensive evaluation to compare the proposed LRML method with a number of competing methods, including 2 standard metrics, 3 unsupervised metrics, and 4 supervised metrics with side information. Encouraging results validate the effectiveness of the proposed technique

**INFORMATION STORAGE AND RETRIEVAL
DATABASE MANANAGEMENT**

Stoner, Jason S., Gallagher, Vickie Coleman And Stoner, Charles R.

“The Interactive Effects of Emotional Family Support and Perceived Supervisor Loyalty on the Psychological Contract Breach-Turnover Relationship”

Journal of Managerial Issues

23:2, Summer 2011;pp124-143

Individuals frequently experience psychological contract breaches in today's workplace. Psychological contract breaches often lead to a range of negative outcomes such as increases in intention to leave one's job. This paper investigates moderating factors that may help minimize the increases in turnover intentions associated with psychological contract breach.

This paper reports the results of examining two related moderating factors perceived supervisors loyalty. Though a series of analyses, the study concludes that individuals who do not perceive supervisor loyalty have greater turnover intentions under conditions of psychological contract breach than individuals perceiving high levels of perceived supervisor loyalty. Interestingly, individuals who lack perceived supervisor loyalty yet perceived high family support are likely to experience higher turnover intentions as a result of a psychological contract breach than individuals who lack supervisor loyalty and family support.

**EMPLOYEE TURNOVER
MANAGERS**

STUDIES
INFLUENCE
ORGANIZATIONAL BEHAVIOR
MARKET ENTRY
COMMERCIALIZATION

Street, Vera L. and Street, Marc D.

(Salisbury University)

Hugh Marble 111, Ph. D., CFA

(University of Vermont)

“An Empirical Investigation of the Influence of Organizational Capacity and Environmental Dynamism on First Moves”

Journal of Managerial Issues

23:3, fall 2011; pp 269-300

Even though firms that are first to market often maintain a performance advantage over later entrants, this is not always the case. There are important contingencies that affect whether a first move will be successful or not. Here, two such contingencies, organizational capacity and environmental dynamism, are examined. Hypotheses focused on how these contingencies affect the first move –performance relationship are tested. These hypotheses are derived from the resource-based model of first-mover advantage by street et al. (2010). Consistent with this model grounded in the resource-based view, the findings of these tests indicate that technology and knowledge integration enable the success of first moves. Additionally, and largely in contrast to predictions based in the resource-based view, there is evidence that there may be constraining factors that could inhibit the creation of appropriate resource from the first move. Application of the job demands model provides insight into these constraining factors. Finally, the findings presented here help explain how first moves can create value for firms by leading to increased performance.

STUDIES

INFLUENCE

ORGANIZATIONAL BEHAVIOR

MARKET ENTRY

COMMERCIALIZATION

Suazo, Mark M.

(Wright State University)

“The Impact of Affect and Social Change on Outcomes of Psychological Contract Breach”

Journal of Managerial Issues

23:2, Summer 2011, pp 190-205

This study examined three issues related to outcomes of psychological contract breach (PCB). First, it examined PCB as a determinant of psychological contract violation (PCV) and whether PCB and PCV are independent constructs. Second, it assessed leader-member exchange as a potential moderator of the PCB-PCV relationship. Third, it examined PCV as a mediating variable in the relation between PCB and supervisor-rated (1) in role behavior and (2) organizational citizenship behavior. This was a longitudinal study conducted in two samples of full-time employees working at two different organizations in the United States. Results were generally supportive of the hypotheses. Implications for theory and research were discussed.

BREACH OF CONTRACT

RESISTANCE OF A CATAMARAN HULL
IN SHALLOW WATER
MORINO'S PANEL METHOD
KELVIN FREE SURFACE CONDITION
PERTURBATION METHOD

Tarafder, Md. Shahjada
(Bangladesh University of Engineering and Technology)

Suzuki, Kasuo
(Yokohama National University)

“Wave-Making Resistance of a Catamaran Hull in Shallow Water Using a Potential-Based Panel Method”

Journal of Ship Research

52:1, March 2008; pp. 16-29

The aim of this paper is to investigate the influence of the water depth and the wave interference effects on the first- and second-order wave making resistance of a catamaran hull using a potential-based boundary element method. Since the interior flow of catamaran is different from the exterior flow, both monohulls must be considered as lifting bodies. The pressure Kutta condition is imposed at the trailing edge of the lifting body to determine the dipole distribution, which generates required circulation on the lifting part. The effects of hull separation and water depth on the hydrodynamic characteristics of a catamaran hull are analyzed and the validity of the computer scheme is examined by comparing the wave resistance with others' numerical results. The presented method could be a useful design tool for screening the suitable combinations of hull parameters and hull spacing at the preliminary design stage of a catamaran hull.

**RESISTANCE OF A CATAMARAN HULL
SHALLOW WATER
MORINO'S PANEL METHOD
KELVIN FREE SURFACE CONDITION
PERTURBATION METHOD**

Testa, C., Ianneillo S., Salvatore F.,
(INSEAN, Italian Ship Model Basin)

Gennaretti, M.

(University Roma Tre)

“Numerical Approaches for Hydroacoustic Analysis of Marine Propellers”

Journal of Ship Research

52:1, March 2008; pp.57-70

This paper is devoted to a theoretical and numerical hydroacoustic analysis of marine propellers. The use of the Ffowcs Williams-Hawkings equation is addressed and compared with a Bernoulli-based methodology, typically used in the naval context. A computational tool based on a boundary element formulation for the velocity potential is used to determine the hydrodynamic loads on the propeller blades. Then, both the Bernoulli and the Ffowcs Williams-Hawkings equations are used to evaluate the pressure far field. The role played by the incompressibility assumption is treated from theoretical and computational points of view; thus, some other numerical issues, concerning the wake modeling effects and the alternative methodologies, are discussed in order to assess the superiority of the acoustic analogy approach and to support its use for naval applications.

HYDRODYNAMICS (PROPULSORS)

NOISE

PROPULSION

SPECIAL-PURPOSE AND APPLICATION-BASED SYSTEMS

COMPUTER SYSTEMS ORGANIZATION

LIFE AND MEDICAL SCIENCES

Vu, Long; Gupta, Indrajit; Gupta, Nehrstedt, Kiana
(University of Illinois)

Tolbert, Jeremy R. Kabali, Pratik, Brar, Simeranjit and Mukhopadhyay
(Georgia, Institute of Technology)

“Modeling and Designing for Accuracy and Energy Efficiency Wireless
Electroencephalography Systems”

**ACM JOURNAL ON EMERGING TECHNOLOGIES IN COMPUTING
SYSTEMS**

8. 1, 2012 pp. 2 [3:2-3:21]

Remote wireless monitoring of physiological signals has emerged as a key enabler for biotelemetry and can significantly improve the delivery of healthcare, improving the energy efficiency and battery lifetime of the monitoring units without sacrificing the acquired signal quality is a key challenge in large-scale deployment of bioelectronic systems for remote wireless monitoring. In this article, we present a design methodology for accuracy aware, energy efficient wireless monitoring of electroencephalography (EEG) data. The proposed design performs a real-time accuracy energy trade-off by controlling the volume of transmitted data based on the information content in the EEG signal. We consider the effect of different system parameters in order to design an optimal system. We analyze the impact of noise of the wireless channel. Our analysis shows that the proposed system design approach can provide up to 10X energy saving in a 32 channel wireless EEG system with minimal impact on the monitored EEG signal accuracy

SPECIAL-PURPOSE AND APPLICATION-BASED SYSTEMS

COMPUTER SYSTEMS ORGANIZATION

LIFE AND MEDICAL SCIENCES

COMPUTER SYSTEMS ORGANIZATION

Vu, Long Gupta Indranil, Gupta Nahrstedt, Klara
(University of Illinois)
Liang, Jin
(Google Inc.)

“Understanding Overlay Characteristics of a Large-Scale Peer-to-Peer IPTV System”

ACM Transactions On Multimedia Computing, Communications And Applications

6 4, 2010 ; pp. 31 [31:2-31:24]

This Article presents results from our measurement and modeling efforts on the large-scale peer-to-peer (p2p) overlay graphs spanned by the PPLive system, the most popular and largest p2p IPTV (Internet Protocol Television) system today Unlike other previous studies on PPLive, which focused on either network-centric or user-centric or user-centric measurements of the system, our study is unique in (a) focusing on PPLive overlay-specific characteristics and (b) being the first to derive from the mathematical models for its distribution of node degree, session length and peer participation in simultaneous overlays.

Our studies reveal characteristics of multimedia streaming p2p overlay that are markedly different from existing file-sharing p2p overlays. Specifically, we find that: (1) PPLive overlays are similar to random graphs in structure and thus more robust and resilient to other massive failure of nodes, (2) Average degree of a peer in the overlay is independent of the channel population size and the node degree distribution can be fitted by a piecewise function (3) The availability correlation between PPLive peer pairs is bimodal, that is, some pairs have highly correlated activity, while others have no correlation (4) Unlike p2p file sharing peers, PPLive peers are impatient and session lengths (discretized, per channel) are typically geometrically distributed, (5) Channel population size is time-sensitive self-repeated, event-dependent, and varies more than in p2p file-sharing networks, (6) Peering relationships are slightly locality-aware, and (7) Peer participation in simultaneous overlays follows a Zipf distribution. We believe that our findings can be used to understand current large-scale p2p streaming systems for future planning of resource usage, and to provide useful and practical hints for future design of large scale p2p streaming systems.

COMPUTER SYSTEMS ORGANIZATION

Wanasika, Isaac

(University of Northern Colorado)

Terry Adler

(New Mexico State University)

“Deception as Strategy: Context and Dynamics”

Journal of Managerial Issues

23:3, fall 2011; pp 364-378

The purpose of this paper is to integrate the literature on deception, highlight the key variables, and provide a decision-making framework that leads to deception. The rationale and context for strategic deception are examined. Uncertainty provides the context for deception. Bounded rationality and opportunity exploitation by corporate executive facilitate deception. Enactment of strategic deception is moderated by the firm's ethical orientation. Relative stakes may create ethical dilemmas and weaken the effectiveness of ethical orientation. While deception has short-term strategic advantage, there are deleterious unintended consequences in the long-term

DECISION MAKING

MULTIMEDIA INFORMATION SYSTEM
DESIGN METHODOLOGY

Wang, Xiangyu Kankanhalli, Mohan
(National University of Singapore)

“MultiFusion: A Boosting Approach for Multimedia Fusion”

ACM Transactions On Multimedia Computing, Communications And Applications

6 : 4, 2010 ; pp. 25[25:2-25:18]

The multimedia data usually contain complementary, correlated and redundant information. Thus, multimodal fusion is useful for many multisensor applications. Here, a novel multimodal fusion algorithm is proposed, which is referred to as “MultiFusion.” The approach adopts a boosting structure where the atomic event is considered as the fusion unit. The correlation of multimodal data is used to form an overall classifier in each iteration. Moreover, by adopting the Adaboost-like structure, the overall fusion performance is improved. Both the simulation experiment and the real application show the effectiveness of the MultiFusion approach. Our approach can be applied in different multimodal applications to exploit them multimedia data characteristics and improve the performance.

MULTIMEDIA INFORMATION SYSTEM

DESIGN METHODOLOGY

COMPUTER-COMMUNICATION NETWORKS

Wanmin, Zhenyu Yang Wu, Nahrstedt

(University of Illinois at Urbana-Champaign)

Kurillo, Gregorij Bajcsy, Ruzena

(University of California Berkeley)

“Enabling Multiparty 3D Tele-Immersive Environments with ViewCast”

ACM Transactions On Multimedia Computing, Communications And Applications

6 4, 2010 ; pp. 29 [29:2-29:28]

Three-dimensional tele-immersive (3DTI) environments have great potential to promote collaborative work among geographically distributed users. However, most existing 3DTI systems work with only two sites due to the huge demand of resources and the lack of a simple yet powerful networking model to handle connectivity, scalability, and quality-of-service (QoS) guarantees. In this article, we explore the design space from the angle of multistream management to enable multi-party 3DTI communication. Multiple correlated 3D video streams are employed to provide comprehensive representation of the physical scene in each 3DTI environment, and rendered together to establish a common cyberspace among all participating 3DTI environments. The existence of multistream correlation provides the unique opportunity for new approaches in QoS provisioning. Previous work mostly concentrated on compression and adaptation techniques on the per-stream basis while ignoring the application layer semantics and the coordination required among streams. We propose an innovative and generalized ViewCast model to coordinate them multistream content dissemination over an overlay network. ViewCast leverages view semantics in 3D free viewpoint video systems to fill the gap between the high-level user interest and the low-level stream management. In ViewCast, only the view information is specified by the user/application, while the underlying control dynamically performs stream differentiation, selection, coordination and dissemination. We present the details of ViewCast and evaluate it through both simulation and 3DTI sessions among tele-immersive environments residing in different institutes across the Internet2. Our experimental results demonstrate the implementation feasibility and performance enhancement of ViewCast in supporting the multiparty 3DTI collaboration.

COMPUTER-COMMUNICATION NETWORKS

Wenzimmer, Laurence G. and Erik J. Michel
(Bradley University)

Wei Jiang, Courtenay Cotton, Shih-Fu Chang, Dan Ellis
(Columbia University)

Alexander C. Loui
(Eastman Kodak Company)

“Audio-Visual Atoms for Generic Video Concept Classification”

ACM Transactions On Multimedia Computing, Communications And Applications

6 . 3, 2010 , pp. 14[14:2-14.19]

We investigate the challenging issue of joint audio-visual analysis of generic videos targeting at concept detection. We extract a novel local representation, Audio-Visual Atom (AVA), which is defined as a region track associated with regional visual features and audio onset features. We develop a hierarchical algorithm to extract visual atoms from generic videos, and locate energy onsets from the corresponding soundtrack by time-frequency analysis.

Audio atoms are extracted around energy onsets. Visual and audio atoms form AVA's based on which discriminative audio-visual codebooks are constructed for concept detection. Experiments over Kodak's consumer benchmark videos confirm the effectiveness of our approach.

INFORMATION STORAGE RETRIEVAL
INFORMATION SYSTEMS APPLICATIONS

Weinzimmer, Laurence G. and Eric J Michel

(Bradley University)

Jennifer L. Franczak

(Southern Illinois University)

“Creativity and Firm Level Performance: The Mediating Effects of Action Orientation”

Journal of Managerial Issues

23:1, March 2011; pp. 62-82

Previous research investigating the link between creativity and performance has been limited. A possible explanation may be that even though an organization possesses certain levels of creativity, these attributes do not impact performance directly. This study argues that a firm's ability to take action mediates the creativity-performance relationship. It draws on organizational behavior literature to first develop an action orientation measure, establish the construct validity of that measure, and hypothesize that action orientation mediates the creativity-firm performance relationship. Doing so further establishes the criterion validity of the action orientation measure in predicting firm performance.

**CREATIVITY
BUSINESS SUCCESS
ACTION RESEARCH
INNOVATION MANAGEMENT**

Wei Zhang and Niraj K. Jha

(Princeton University)

Li Shang

(University of Colorado, Boulder)

“Low-Power 3D Nano/CMOS Hybrid Dynamically Reconfigurable Architecture”

ACM Journal Emerging Technologies in Computing Systems.

6 : 3, 2010 ; pp. 10[10:2-10:32]

In order to continue technology scaling beyond CMOS, diverse nanoarchitectures have been proposed in recent years based on emerging nanodevices, such as nanotubes, nanowires, etc. Among them, some hybrid nano/CMOS reconfigurable architectures enjoy the advantage that they can be fabricated using photolithography. NATURE is one such architecture that we proposed recently. It comprises CMOS reconfigurable logic and CMOS fabrication-compatible nano RAMs. It uses distributed high-density and fast nano RAMs as on-chip storage for storing multiple reconfiguration copies, enabling fine cycle-by-cycle reconfiguration. It supports a highly efficient computational model, called temporal logic folding, which makes possible more than an order of magnitude improvement in logic density and area-delay product, significant power reduction, and significant design flexibility in performing area-delay trade-offs.

In this article, we extend NATURE in various dimensions, evaluating various FPGA approaches in the context of today's emerging technologies. First, we explore the introduction of embedded coarse-grain modules in the fine-grain NATURE architecture and present a unified dynamically reconfigurable architecture, which can significantly enhance NATURE's computation power for data-dominated applications. Second, we explore a 3D architecture for NATURE in which the nano RAM for reconfiguration storage is one layer and the rest of the CMOS logic on another layer. This leads to further improvements in logic density and performance. Finally, we explore the possibility of using FinFET's, an emerging double-gate CMOS technology, to implement NATURE. Since power consumption is an important consideration in the deep nanometer regime, especially for FPGA'S we presented a back-gate biasing methodology for flexible threshold voltage adjustment in FinFET's to significantly reduce NATURE's power consumption. Simulation results demonstrate the efficacy of the proposed methods.

INTEGRATED CIRCUITS.

W.S. Wang, T O'donnell, N. Wang, And M. Hayes

(Tyndall National Institute)

B.O'FLYNN and C. O'MATHUNA

(Clarity Center for Sensor web Technologies)

"Design Considerations of Sub-mV Indoor Light Energy Harvesting for Wireless Sensor Systems"

ACM Journal Emerging Technologies in Computing Systems.

6 2, 2010 , pp. 6 [6:2-6:26]

For most wireless sensor networks, one common and major bottleneck is the limited battery lifetime. The frequent maintenance efforts associated with battery replacement significantly increase the system operational and logistics cost. Unnoticed power failures on nodes will degrade the system reliability and may lead to system failure. In building management applications, to solve this problem, small energy sources such as indoor light energy are promising to provide long-term power to these distributed wireless sensor nodes. This article provides comprehensive design considerations for an indoor light energy harvesting system for building management applications. Photovoltaic cells characteristics, energy storage units, power management circuit design, and power consumption pattern of the target mote are presented. Maximum power point tracking circuits are proposed which significantly increase the power obtained from the solar cells. The novel fast charge circuit reduces the charging time. A prototype was then successfully built and tested in various indoor light conditions to discover the practical issues of the design. The evaluation results show that the proposed prototype increases the power harvested from the PV cells by 30 % and also accelerates the charging rate by 34% in a typical indoor lighting conditions. By entirely eliminating the rechargeable battery as energy storage, the proposed system would expect an operational lifetime 10-20 years instead of the current less than 6 months battery lifetime.

**COMPUTER-COMMUNICATION NETWORKS
COMPUTER SYSTEMS ORGANIZATION**

Xing Jin
(Oracle USA, Inc)

S.H. Gary Chan
(The Hong Kong University of Science and Technology)

“Detecting Malicious Nodes in Peer-to-Peer Streaming by Peer-Based Monitoring”

ACM Transactions On Multimedia Computing, Communications And Applications

6 2, 2010 , pp. 9[9:2-9:18]

Current peer-to-peer (P2P) streaming systems often assume that nodes cooperate to upload and download data, However in the open environment of the Internet, this is not necessarily true and there exist malicious nodes in the system. In this article, we study malicious actions of nodes that can be detected through peer-based monitoring. We require each node to monitor the data received and to periodically send monitoring messages about its neighbors to some trustworthy nodes. To efficiently store and search messages among multiple trustworthy nodes, we organize trustworthy nodes into a threaded binary tree. Trustworthy nodes also dynamically redistribute monitoring messages among themselves to achieve load balancing. Our simulation results show that this scheme can efficiently detect malicious nodes with high accuracy and that dynamic redistribution method can achieve good load and balancing among trustworthy nodes.

**COMPUTER-COMMUNICATION NETWORKS
INFORMATION STORAGE AND RETRIEVAL**

INTEGRATED CIRCUITS
LIFE AND MEDICAL SCIENCES

Zhang, Meng and Jia, Niraj K.
Princeton University

Yang Zhao, Tao Xu and Krishnendu Chakrabarty
(Duke University)

“Integrated Control-Path Design and Error Recovery in the Synthesis of Digital Microfluidic Lab-on-Chip”

ACM Journal Emerging Technologies in Computing Systems.

6 · 3, 2010 ; pp. 11[11:2-11:28]

Recent advances in digital microfluidics have led to tremendous interest in miniaturized lab-on-chip devices for biochemical analysis. Synthesis tools have also emerged for the automated design of lab-on-chip from the specifications of laboratory protocols. However none of these tools consider control flow or address the problem of recovering from fluidic errors that can occur during on-chip bioassay execution. We present a synthesis method that incorporates control paths and an error recovery mechanism in the design of a digital microfluidic lab-on-chip. Based on error-propagation estimates, we determine the best locations for fluidic checkpoints during biochip synthesis.

A microcontroller coordinates the implementation of the control-flow-based bioassay by intercepting the synthesis results that are mapped to the software programs. Real-life bioassay applications are used as case studies to evaluate the proposed design method. For a representative protein assay, compared to baseline chip design the biochip with a control path can reduce the completion time by 30% when errors occur during the implementation of the bioassay.

**INTEGRATED CIRCUITS
LIFE AND MEDICAL SCIENCES**

Zhang, Meng and Jha, Niraj K.

Princeton University

“Finfet-Based Power Management for Improved DPA Resistance with Low Overhead”

ACM Journal on Emerging Technologies in Computing Systems

7:3, 2011, pp. 10[1-16]

Differential power analysis (DPA) is a side-channel attack that statistically analyzes the power consumption of a cryptographic system to obtain secret information. This type of attack is well known as a major threat to information security. Effective solutions with low energy AND area cost for improve DPA resistance attacks are urgently needed, especially for energy-constrained modern devices that are often in the physical proximity of attackers. This article presents the novel countermeasure against DPA attacks on smart cards and other digital IC's based on FinFETs, an emerging substitute for bulk CMOS at the 22nm technology node and beyond. We exploit the adaptive power management characteristic of FinFETs to generate high level of noise at critical moments in the execution of cryptosystem to thwart DPA attacks. We demonstrate the effectiveness of the proposed countermeasure by developing a simple power model for estimating DPA spikes. We then validate the model by carrying out DPA attacks on an ASIC implementation of the advanced encryption standard system via gate-level simulation. Both modeling and simulation-based experiment indicate that with the proposed countermeasure, even 8,000,000 power acquisition are not sufficient to reveal the secret key. As opposed to other countermeasures presented in the literature, the proposed hardware design requires less than 1% increase in area and 15% increase in total energy consumption without any extra delay in the critical path. The proposed method is generic and can be applied to other encryption algorithms as well.

SIMULATION AND MODELLING

Zhang, Xin Ward, Tomas and Mcloone, Seamus
(National University of Ireland Maynooth)

“Comparison of Predictive Contract Mechanisms from Information Theory Perspective”
ACM Transactions On Multimedia Computing, Communications And Applications
8 : 2, 2012 ; pp. 18[18:2-18:18]

Inconsistency arises across a Distributed Virtual Environment due to network latency induced by state changes communications. Predictive Contract Mechanisms (PCMs) combat this problem through reducing the amount of messages transmitted in return for perceptually tolerable inconsistency To date there are no methods to quantify the efficiency of PCMs in communicating this reduced state information. This article presents an approach derived from concepts in information theory for a deeper understanding of PCMs. Through a comparison of representative PCMs, the worked analysis illustrate interesting aspects of PCMs operation and demonstrates how they can be interpreted as a form of lossy information compression.

COMPUTER COMMUNICATION NETWORKS
SIMULATION AND MODELING
MODELS AND PRINCIPLES

INFORMATION STORAGE RETRIEVAL

Zheng-Jun Zha
(University of Science and Technology of China and National University of Singapore)

Linjun Yang, Tao Mei, Meng Wang,
(Microsoft Research Asia)

Zengfu Wang
(University of Science Technology of China)

Tat-Seng Chua,
(National University of Singapore)

Xian-Sheng Hua
(Microsoft Research Asia)

“Visual Query Suggestion: Towards Capturing User Intent in Internet Image Search”

ACM Transactions On Multimedia Computing, Communications And Applications

6 : 3, 2010 ; pp. 13[13:2-13:19]

Query suggestion is an effective approach to bridge the Intention Gap between the user's search intents and queries. Most existing search engines are able to automatically suggest a list of textual query terms based on user's current query input, which can be called “Textual Query Suggestion. This article proposes a new query suggestion scheme named Visual Query Suggestion (VQS) which is dedicated to image research. VQS provides a more effective query interface to help users to precisely express their search intents by joint text and image suggestions. When a user submits a textual query, VQS first provides a list suggestions, each containing a keyword and a collection of representative images in a dropdown menu. Once the user selects one of the suggestion, the corresponding keyword will be added to complement the initial query as the new textual query, while the image collection will be used as the visual query to further represent the search intent. VQS then performs image search intent. VQS then performs image search based on the new textual query using text search techniques, as well as content-based visual retrieval to refine the search results by using the corresponding images as query examples. We compare VQS against three popular image search engines, and show that VQS outperforms these engines in terms of both quality of query suggestion and the search performance.

INFORMATION STORAGE RETRIEVAL

Zhenyu Yang, Wanmin Wu and Klara Nahstedt
(University of Illinois at Urbana-Champaign)

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“Enabling Multi-Party 3D Tele-Immerse Environments With View Cast”

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Three-dimensional tele-immersive (3DT) environments have great potential to promote collaborative work among geographically distributed users. However, most existing 3DTI systems only work with two sites due to the huge demand of resources and the lack of a simple, yet powerful networking model to handle connectivity, scalability, and quality-of-service (QoS) guarantees. In this article, we explore the design space from the angle of multi-stream management to enable multi-party 3DTI communication. Multiple correlated 3D video streams are employed to provide a comprehensive representation of the physical scene in each 3DTI environment, and are rendered together to establish a common cyberspace among all participating 3DTI environments. The existence of multi-stream correlation provides the unique opportunity for a new approaches in QoS provisioning.

Previous work mostly concentrated on compression and adaptation techniques on the per-stream basis while ignoring the application layer semantics and the coordination required among streams. We propose an innovative and generalized, ViewCast model to coordinate the multi stream content dissemination over an overlay network. ViewCast leverages view semantics in 3D free-viewpoint video systems to fill the gap between high-level user interest and low-level stream management. In ViewCast, only the view information is specified by the user/application, while the underlying control dynamically performs stream differentiation, selection, coordination, and dissemination. We present the details of ViewCast and evaluate it through both simulation and 3DTI sessions among tele-immersive environments residing in different institutes across the Internet2. Our experimental results demonstrate the implementation feasibility and performance enhancement of ViewCast in supporting multi-party, 3DTI collaboration.

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