First, my apologies that the newsletter is a bit delayed this year, but “better late than never” as they say; the delay is entirely my fault. However, as the 2009 Annual Meeting approaches, I’m happy to say that the Technical Group is smoothly moving forward. We have an outstanding technical program this year for which the credit goes primarily to our outstanding Technical Program Chair, Tiffany Jastrzembski, as well as to all the dedicated reviewers. I hope to see all of you at the sessions as well as the TG business meeting coming up soon in San Antonio. The business meeting will be at what is now the “usual” time for HPM, 5:30 p.m. on Wednesday. In honor of the location of this year’s meeting, there will be nachos!

Human Performance Modeling continues to grow. You will notice in this version of the newsletter that we now have a job-oriented classified section. Modelers are in demand! This is good news and reflects the increasing interest in modeling in a variety of domains. Particularly given the current economy, I think this shows the strength of interest in modeling within the Human Factors community.

Consistent with this, I would like to see the Technical Group grow, not only in terms of the number of members, but in our interactions with other societies. There are other national and international conferences at which modeling is the focus, and I would like to start seeing the TG involved in some of those meetings. This is already happening at the individual level as members of the TG attend many of those other meetings, but I would like to see something more formal. To that end, I had a conversation this summer with our former Technical Program Chair, Dario Salvucci, who will be chairing the next International Conference on Cognitive Modeling (ICCM). I proposed the idea of co-sponsoring a workshop on “Applied Cognitive Modeling” in the hopes that we could get a few of the modelers who usually attend HFES but not ICCM to attend. ICCM will be in August 2010 in Philadelphia and I sincerely hope that some of you will be able to attend and support this effort. If there are other meetings that you attend that you think the TG should coordinate with, please let me know.

In addition, in order to increase exposure of students to our TG, this year the TG is partially sponsoring one of the “Brown Bag” Student Mentoring Luncheons. The Luncheons will be held in the hotel restaurant and are designed to provide students and early career professionals with information and opportunities to develop mentoring relationships with established professionals in the human factors/ergonomics field. This would be even more effective if some of the senior TG members could volunteer to be mentors, so if you can do so, I would encourage you to volunteer.

Continuing on with the theme of HPM becoming more visible, I was honored to be asked to write a chapter on human performance modeling in the new Reviews of Human Factors and Ergonomics, Volume 5. The chapter is entitled “A History and Primer of Human Performance Modeling” with the bulk of the “history” part contributed by Dick Pew. It was a pleasure to work with Dick and the reviewers (who are also TG members) and I think the final product is something the TG can be proud of. To quote, the chapter “is intended for human factors researchers and practitioners who are interested in modeling but not experts with any particular modeling approach or domain. It should also be relevant to those who are already modelers and are interested in a survey of other domains and approaches where human performance modeling (HPM) methods have been ap-

(Continued on page 7)
HP2: LECTURES - Wednesday, October 21, 2009 01:30 - 3:00 pm

"Modeling Human Performance in the Environmental Context"

**Session Chairs:** Charneta Samms & Linda Boyle

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**A Method for the Formal Verification of Human-Interactive Systems**

Matthew Bolton University of Virginia, Ellen Bass University of Virginia

Predicting failures in complex, human-interactive systems is difficult as they may occur under rare operational conditions and may be influenced by many factors including the system mission, the human operator’s behavior, device automation, human-device interfaces, and the operational environment. This paper presents a method that integrates task analytic models of human behavior with formal models and model checking in order to formally verify properties of human-interactive systems. This method is illustrated with a case study: the programming of a patient controlled analgesia pump. Two specifications, one of which produces a counterexample, illustrate the analysis and visualization capabilities of the method.

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**NT-SEEV: A Model of Attention Capture and Noticing on the Flight Deck**

Christopher Wickens University of Illinois, Jason McCarley University of Illinois at Urbana-Champaign, Kelly Steelman-Allen University of Illinois, Angelia Sebok Alion Science & Technology: MA&D Operations, Julie Bzostek Alion Science & Technology: MA&D Operations, Nadine Sarter University of Michigan

N-SEEV is a model that predicts the noticeability of events that occur in the context of routine task-driven scanning across large scale visual environments. The model is an extension of the SEEV (salience, effort, expectancy, value) model, incorporating the influence of attentional set and allowing the possibility of a dynamic environment. The model was validated against two empirical data sets. In a study of pilot scanning across a high fidelity automated 747 cockpit, the SEEV component of the model predicted the distribution of attention with a correlation of 0.85. In a lower fidelity

(Continued on page 3)
study of pilot noticing of the onset of critical cockpit events (flight mode annunciators) the model predicted differences in noticing time and accuracy with correlations (across conditions) above 0.95. Other properties of the model are described.

N-SEEV: A Computational Model of Attention and Noticing

Kelly Steelman-Allen University of Illinois at Urbana-Champaign, Jason McCarley University of Illinois at Urbana-Champaign, Christopher Wickens University of Illinois at Urbana-Champaign, Angelia Sebok Alion Science & Technology: MA&D Operations, Julie Bzostek Alion Science & Technology: MA&D Operations

The N-SEEV is a stochastic model of overt attention within a visual display or workspace. The model integrates elements from several existing models of attention (Bundesen, 1987, 1990; Itti & Koch, 2000; Wolfe, 1994; Wickens, et al., 2003) to provide (1) predictions of the allocation of visual attention among discrete display channels; (2) the likelihood of a scanning transition between any pair of channels; and (3) the number of eye movements needed to fixate the onset of a visual signal or event. Preliminary tests of the model show a close fit between model predictions and actual pilot scanning and noticing times.

Measuring Coordination Demand in Multirobot Teams

Michael Lewis University of Pittsburgh, Jijun Wang Quantum Leap Innovations, Inc.

Conventional models of multirobot control assume independent robots and tasks. This allows an additive model in which the operator controls robots sequentially neglecting each until its performance deteriorates sufficiently to require new operator input. This paper presents a measure of coordination demand, CD, and experiments intended to extend the neglect tolerance model to situations in which robots must cooperate to perform dependent tasks. In the first experiment operators controlled 2 robot teams to perform a box pushing task under high coordination demand, teleoperation, moderate demand (waypoint control/heterogeneous robots), and low demand (waypoint control/homogeneous robots) conditions. In the second experiment participants performed a search and rescue task requiring cooperation between robots creating maps and others carrying cameras. Measured demand and performance were largely consistent with the CD model’s predictions.

A Belief-Based Model of Air Traffic Controllers Performing Separation Assurance

Steven Landry Purdue University

A model of an air traffic controller performing a separation assurance task was produced. The model was designed to be simple to use and deploy in a simulator, but still provide realistic behavior. The model is based upon an evaluation of the safety function of the controller for separation assurance, and utilizes fast and frugal heuristics and belief networks to establish a knowledge set for the controller model. Based on this knowledge set, the controller acts to keep aircraft separated. Validation results are provided to demonstrate the model’s performance.

2009 HPM-TG Business Meeting

If you’re coming to the Annual Conference and you’d like to provide input or gain a better understanding of how the HPM-TG operates, please plan to attend our 2009 Business Meeting, to be held Wednesday, October 21 at 5:30 pm. Please check the conference program for location. We’d love to see and hear from you! We will be serving NACHOS!
An important goal of training systems research is the ability to train teams to criterion while simultaneously minimizing training resources. One promising approach is to develop synthetic agents that act as full-fledged members of a team. Five experts will highlight successes, failures, and continuing challenges associated with the development, validation, and deployment of synthetic agents as full-fledged teammates. The panel will provide an intimate look “under the hood” of synthetic agents, describe what each has found useful for developing a synthetic teammate that “plays well with others,” and discuss the key roadblocks that must be overcome for the further inclusion of synthetic teammates within human training systems. The lessons learned from these panelists will be of value to those interested in cognitive engineering and human performance modeling.

A Process-Model Account of Task Interruption and Resumption: When Does Encoding of the Problem State Occur?

Dario Salvucci Drexel University, Christopher Monk George Mason University, J. Trafton U.S. Naval Research Lab

Memory for goals theory (Altmann & Trafton, 2002) describes how people suspend and resume an interrupted task by encoding, or rehearsing, the current problem state at the point of interruption and recalling this state after the interruption. In this work we investigated the timing of the encoding process, attempting to determine the most likely strategies for when to perform encoding of interrupted problem state. We examined several candidate encoding strategies and developed computational cognitive models to represent each strategy, embedding the models into a larger model of behavior in a interruption-tracking task. Comparison of the model simulations with recent empirical data suggests that encoding of problem state occurs for a short time at the start of the interruption period and is performed concurrently with the interrupting task.

(Continued on page 5)
Neurophysiologic Collaboration Patterns During Team Problem Solving
Ron Stevens & Trysha Galloway University of California, Los Angeles, Chris Berka Advanced Brain Monitoring, Inc., Marcia Sprang Esperanza High School

We have explored using neurophysiologic collaboration patterns as an approach for developing a deeper understanding of how teams collaborate when solving time-critical, complex real-world problems. Teams of three students solved substance abuse management simulations using IMMEX software while measures of mental workload (WL) and engagement (E) were generated by electroencephalography (EEG). Levels of high and low workload and engagement were identified for each member at each epoch statistically and the vectors consisting of these measures were clustered by self-organizing artificial neural networks. The resulting cognitive teamwork patterns, termed neural synchronies, were different across six different teams. When the neural synchronies were compared across the team members of individual teams segments were identified where different synchronies were preferentially expressed. Some were expressed early in the collaboration when the team members were forming mental models of the problem, others were expressed later in the collaboration when the team members were sharing their mental models and converging on a solution. These studies indicate that non-random patterns of neurophysiologic synchronies can be observed across teams and members of a team when they are engaged in problem solving. This approach may provide an approach for monitoring the quality of team work during complex, real-world and possible one of a kind problem solving.

Using Saccadic Intrusions to Quantify Mental Workload
Satoru Tokuda, Evan Palmer, Edgar Merkle & Alex Chaparro Wichita State University

This study proposes a new method to quantify mental workload (MWL) automatically, without interfering with the operator’s primary task performance. An unobtrusive Tobii eye tracker recorded eye movements while participants were engaged in a cognitively demanding N-back task. Original algorithms automatically analyzed the eye data, detected specific eye deviation movements called saccadic intrusions (SIs), and automatically quantified the eye deviation accounted for SIs. This SI measure was strongly correlated with the task difficulty levels in the N-back tasks and with pupil diameter. This indicates that the SI measure appeared to reflect MWL and may be used as a measure of MWL.

An Analysis Capability for System of Systems Research
Elizabeth Bowman & Jeffrey Smith U.S. Army Research Lab

This paper proposes an analysis capability for systems of systems research in military settings. A new approach is needed due to the increasingly complex socio-technical nature of Command and Control (C2). This research seeks to advance the Army analysis process by developing a capability to examine cognitive, social and technical aspects of information sharing and consequential decision making requirement for C2. We first review the definition of system of systems. Next, we establish the agent-based modeling and simulation (ABMS) paradigm as a useful method for analysis because of its facility for exploring large and complex problem spaces. This is followed by some structural issues addressed by ABMS with an emphasis on the challenge of representing human behavior in psychologically plausible ways. We then present one instantiation of ABMS that incorporates a representation of human decision making and the utility of information in a small vignette. We consider the suitability of this ABMS for system of system analyses with respect to how the decision making processes represent human decision making behavior. Finally, we discuss an ongoing approach to improve human behavior representations in the agents of this ABMS.
Workload Warriors: Lessons Learned from a Decade of Mental Workload Prediction Using Human Performance Modeling
Diane Mitchell & Charnetta Samms U.S. Army Research Lab
For at least a decade, researchers at the Army Research Laboratory (ARL) have predicted mental workload using human performance modeling (HPM) tools, primarily IMPRINT. During this timeframe their projects have matured from simple models of human behavior to complex analyses of the interactions of system design and human behavior. As part of this maturation process, the researchers learned: 1) to develop a modeling question that incorporates all aspects of workload, 2) to determine when workload is most likely to affect performance, 3) to build multiple models to represent experimental conditions, 4) to connect performance predictions to an overall mission or system capability, and 5) to format results in a clear, concise format. By implementing the techniques they developed from these lessons learned, the researchers have had an impact on major Army programs with their workload predictions. Specifically, they have successfully changed design requirements for future concept Army vehicles, substantiated manpower requirements for fielded Army vehicles, and made Soldier workload the number one item during preliminary design review for a major Army future concept vehicle program. The effective techniques the ARL researchers developed for their IMPRINT projects are applicable to other HPM tools. In addition, they can be used by students and researchers who are doing human performance modeling projects and are confronted with similar problems to help them achieve project success.

Effects of Cognitive Distraction on Checking Traffic Conditions for Changing Lanes
Huiping Zhou, Makoto Itoh, Toshiyuki Inagaki University of Tsukuba
This paper aimed to reveal effects of cognitively distracting activity on checking traffic condition before changing lanes. We conducted an experiment to investigate driver behavior to change lanes under two conditions: only a driving task and an additional cognitive task. It was revealed that the decrease and delay on checking traffic occurred continually during a long time period before executing lane changes, not just temporarily. The result showed that distraction might contribute to the effects. It was also suggested that cognitive distraction may degrade the perceptual capability in situation awareness. A necessary was demonstrated to give support functions, which aid a driver enhancing situation awareness and attract driver’s attention from distractions, in order to prevent accidents in lane changes.

A Componential Model of Human Interaction with Graphs: VII. A Review of the Mixed Arithmetic-Perceptual Model
Douglas Gillan North Carolina State University
This paper provides a summary of the development and evaluation of a componential model of graph reading called the Mixed Arithmetic-Perceptual (MA-P) model. A review of the history underlying the development of the model begins the paper. The second section describes the research used to test the predictions from the model and to further develop it. The third section integrates the research to produce a single omnibus version of the MA-P model. Finally, the fourth section projects the future of the MA-P modeling approach, for specific versions of the model, additional research, as well as applications.

Movement Control Phases of Upper Body Coordination in Visually Guided Reach Movements
Shin-Yuan Yu & Bernard Martin University of Michigan
Coordination of human movement includes temporal and spatial aspects. Under the assumption that the implicit movement sequence of body segments may be associated with visual feedback information, the activation timing, time to peak velocity of the hand and sequencing of joint movements were investigated in this study. The results show that variations in
movement time with target azimuth and distance fit a quadratic regression model. In addition, the time to peak velocity reveals a movement scaling property in the context of self-imposed movement speed. Finally, the sequencing of joint movement also varies with target azimuth and distance. These motor behavior properties and movement characteristics can be used to model human reach movement in a dynamic manner and to estimate task durations.

Evaluation of Mouse and Touch Input for a Tabletop Display Using Fitts’ Reciprocal Tapping Task
Farzan Sasangohar University of Waterloo, I. MacKenzie York University & Stacey Scott University of Waterloo

User performance with a tabletop display was tested using touch-based and mouse-based interaction in a traditional pointing task. Dependent variables were throughput, error rate, and movement time. In a study with 12 participants, touch had a higher throughput with average of 5.53 bps compared to 3.83 bps for the mouse. Touch also had a lower movement time on average, with block means ranging from 403 ms to 1051 ms vs. 607 ms to 1323 ms with the mouse. Error rates were lower for the mouse at 2.1%, compared to 9.8% for touch. The high error rates using touch were attributed to problems in selecting small targets with the finger. It is argued that, overall, touch input is a preferred and efficient input technique for tabletop displays, but that more research is needed to improve touch selection of small targets.

The View from the Chair (continued)

(Continued from page 1)

plied.” Hopefully that includes at least some of you. The new Reviews should be available at the conference, so please take a look.

That about wraps it up for this newsletter, but keep an eye on the mailing list for more details on ICCM next summer. I hope to see all of you soon in San Antonio!

Mike

RESEARCH OPPORTUNITY

I am associated with the Center for Operator Performance (www.operatorperformance.org), a collaboration of oil/chemical companies and control system suppliers centered at Wright State University. We are seeking to identify potential researchers to conduct a project.

The project would entail the creation of an evaluation tool for control rooms at refineries, chemical plants, and pipelines to identify an abnormally high risk of operator error. This will likely be a multiphase project with the goal of quantifying the increased risk and correlating the evaluative criteria with historical performances of the plants through data mining. Our goal at this point is to identify researchers/organizations that have an interest and capability in this area.

Thank you for your time.

Sincerely,

David A. Strobhar, PE
Chief Human Factors Engineer
937-434-1093
Here are some recent publications that may be of interest to you. The list is not meant to be all encompassing nor have these publications been formally reviewed by a member of the HPM-TG. If you do decide to read one, please submit a review for the next newsletter and let us know what you think!

Minkowski spaces as models of human-machine communication
Moray, Neville & Hancock, Peter A.
Theoretical Issues in Ergonomics Science 10 (4), JUL 2009, 315-334

A predictive model of human performance with scrolling and hierarchical lists
Cockburn, Andy & Gutwin, Carl
Human-Computer Interaction, 24(3), JUL 2009, 273-314

Performance Improvement: Applying a Human Performance Model to Organizational Processes in a Military Training Environment
Aaberg, Wayne; Thompson, Carla J.; West, Haywood V.; Swiergosz, Matthew J.
Performance Improvement, 48(5), MAY 2009, 16-24

Normal people working in normal organizations with normal equipment: System safety and cognition in a mid-air collision.
de Carvalho, Paulo Victor Rodrigues; Gomes, José Orlando; Huber, Gilbert Jacob; Vidal, Mario Cesar

Design and evaluation of smart home user interface: Effects of age, tasks and intelligence level
Zhang, Bin; Rau, Pei-Luen Patrick; Salvendy, Gavriel
Behaviour & Information Technology, 28(3), MAY 2009, 239-249

Development and evaluation of an ergonomic software package for predicting multiple-task human performance and mental workload in human-machine interface design and evaluation
Wu, Changxu; Liu, Yili
Computers & Industrial Engineering, 56(1), FEB 2009, 323-333

Principles of synthetic intelligence: Psi: An architecture of motivated cognition
Bach, Joscha

A novel polar-based human face recognition computational model
Zana, Y; Mena-Chalco, J P; Cesar, R M
Brazilian journal of medical and biological research = Revista brasileira de pesquisas medicas e biologicas / Sociedade Brasileira de Biofisica ... [et al., 2009 JUL, 42(7):637-46S0100-879X2009000700008

Combat Simulation of Individual Soldier Search in Urban Terrain
Hasting, MD
Performer: Naval Postgraduate School, Monterey, CA., JUN 2009, 101

Modeling Human Visual Perception for Target Detection in Military Simulations
Jungkunz, P
Performer: Naval Postgraduate School, Monterey, CA., J JUN 2009, 172

Automatic computation of an image's statistical surprise predicts performance of human observers on a natural image detection task
Mundhenk, T Nathan; Einhäuser, Wolfgang; Itti, Laurent
Vision research, 49(13), Jun 2009, 1620-37

Optimal control predicts human performance on objects with internal degrees of freedom
Nagengast, Arne J; Braun, Daniel A; Wolpert, Daniel M
PLoS computational biology, 2009 JUN, 5(6)

Stressing what is important: Orthographic cues and lexical stress assignment
Ševa, Nada; Monaghan, Padraic; Arciuli, Joanne
Journal of Neurolinguistics, 22(3), MAY 2009, 237-249

A proactive approach to human error detection and identification in aviation and air traffic control
Kontogiannis, Tom; Malakis, Stathis
Safety Science, 47(5), MAY 2009, 693-706

An evidence accumulation model for conflict
detection performance in a simulated air traffic control task
Neal, Andrew; Kwantes, Peter J
Human factors, 51(2), APR 2009, 164-80

Using computational cognitive modeling to predict dual-task performance with sleep deprivation
Gunzelmann, Glenn; Byrne, Michael D; Gluck, Kevin A; Moore, L Richard
Human factors, 51(2), APR 2009, 251-60

Adaptive learning via selectionism and Bayesianism, Part I: connection between the two.
Zhang, Jun
Neural networks, 22(3), APR 2009, 220-8

Computational and fMRI Studies of Visualization
Just, MA

Human Performance and Human Systems Integration
Martindale, V
Aviation, Space, and Environmental Medicine, 80(3), MAR 2009, 234-235
Quantitative analysis of ATM safety issues using retrospective accident data: The dynamic risk modelling project
Leva, Maria Chiara; De Ambroggi, Massimiliano; Grippa, Daniela; De Garis, Randall; Trucco, Paolo; Strater, Oliver
Safety Science, 47(2), FEB 2009, 250-264

A model of memory for incidental learning
Browse, Roger A.; Drewell, Lisa Y.
Proceedings of SPIE - The International Society for Optical Engineering, SPIE-7240, JAN 2009

Mental representations as an underlying mechanism for human performance.
Tenenbaum, Gershon; Land, William M
Progress in brain research, 2009, 174:251-66

Human error contributors in computer interaction: Analysis of expert and novice performance in complex task accomplishment
Mosley, Jeffery V.
Dissertation Abstracts International Section A: Humanities and Social Sciences, 69(7-A), 2009, 2682

Material Needed!!!!

We really want to expand the content of future editions of The Output!

Example contributions we are seeking...

- Letters to the editor
- Opinions and non-reviewed articles
- Lab and research descriptions
- Human performance modeling tool highlights
- Conference announcements
- Calls for papers
- Reviews of books, software, etc.
- Suggested reading -books articles
- Member spotlight
- Job and study opportunities
- Relevant (and appropriate) humor
- Any other ideas

We also want to add to the content of our website. Please send materials to the HPM-TG Webmaster Matthew Bolton
mlb4b@virginia.edu.

Visit our current website at http://www.hfes.org/hpmtg/

Please send materials to the HPM-TG Newsletter Editor, Charneta Samms at charneta.samms@us.army.mil
Contour statistics in natural images: Grouping across occlusions
Geisler, Wilson S.; Perry, Jeffrey S.
Visual Neuroscience. Special Issue: Natural systems analysis, 26(1), JAN-FEB 2009, 109-121

How many pixels make an image?
Torralba, Antonio
Visual Neuroscience. Special Issue: Natural systems analysis, 26(1), JAN-FEB 2009, 123-131

Bayesian decision theory as a model of human visual perception: Testing Bayesian transfer.
Maloney, Laurence T.; Mamassian, Pascal
Visual Neuroscience. Special Issue: Natural systems analysis, 26(1), JAN-FEB 2009, 147-155

An evaluation of the efficacy of Wile's taxonomy of human performance factors
Gilmore, Erika R.
Dissertation Abstracts International Section A: Humanities and Social Sciences 69(8-A), 2009, 3117

An improved model-free adaptive control with G function fuzzy reasoning regulation design and its applications
Lu, F L; Wang, J F; Fan, C J; Chen, S B

Oscillatory neural network for pattern recognition: trajectory based classification and supervised learning
Miller, Vonda H; Jansen, Ben H
Biological cybernetics, DEC 2008, 99(6):459-71

Bridging Human Performance Evaluation to Design Improvement in Human-Machine Interface (HMI)
Ha, Jun-Su; Seong, Poong-Hyun

NIMBLE: a kernel density model of saccade-based visual memory.
Barrington, Luke; Marks, Tim K; Hsiao, Janet Hui-wen; Cottrell, Garrison W

Modeling of Manufacturing Complexity in Mixed-Model Assembly Lines
Zhu, Xiaowei; Hu, S Jack; Koren, Yoram; Marin, Samuel P
Journal of Manufacturing Science and Engineering (Transactions of the ASME), 130(5), OCT 2008, 051013

A proactive approach to human error detection and identification in aviation and air traffic control
Kontogiannis, Tom; Malakis, Stathis
Safety Science, 47(5), MAY 2009, 693-706

Use cases and personas: uses in service sector simulation development
McHaney, Roger W.

MSIAC Journal. Volume 4, Issue 1, March 2009
Performer: Modeling and Simulation Information Analysis Center, Alexandria, VA. MAR 2009

Culturally Aware Agents for Training Environments (CAATE): Phase I Final Report
Reilly, SN; Bayley, C; Koelle, D; Marotta, S; Pfautz, J

Study of interoperable human behavior models system
Liang, Xiao-Man; Xiao, Qiong; Chen, Xi-Hui
Computer Engineering and Design, 30(8), 2009, 1981-1986

Tactical Decision Making under Categorical Uncertainty with Applications to Modeling and Simulation
Kemmerer, KE
Performer: Naval Postgraduate School, Monterey, CA, DEC 2008, 122

Infrared sensor modeling for human activity discrimination tasks in urban and maritime environments
Deaver, Dawne M; Flug, Eric; Boettcher, Evelyn; Smith, Stevie R; Miller, Brian
Applied optics, 2009 JUL 1, 48(19):3537-56

A real-time warning model for teamwork performance and system safety in nuclear power plants
Hwang, Sheue-Ling; Liang, Guo-Feng; Lin, Jih-Tsong; Yau, Yi-Jan; Yenn, Tzu-Chung; Hsu, Chong-Cheng; Chuang, Chang-Fu
Safety Science, 47(3), MAR 2009, 425-435

The role of modelling in achieving information systems success: UML to the rescue?
Larsen, Tor J.; Niederman, Fred; Limayem, Moez; Chan, Joyce
Information Systems Journal, 19(1), JAN 2009, 83-117

Performance models for automatic evaluation of virtual scanning keyboards.
Bhattacharya, Samit; Samanta, Debasis; Basu, Anupam
IEEE transactions on neural systems and rehabilitation engineering, 2008 OCT, 16(5):510-9

Queuing network modeling of the psychological refractory period (PRP)
Wu, Changxu; Liu, Yili
Psychological Review, 115(4), OCT 2008, 913-954

Development of a Human Performance Model as a Baseline for Automatic Change Detection Software Capabilities in Mine Warfare
Barrett, JS
Performer: Naval Postgraduate School, Monterey, CA, SEP 2008, 51

Child neck FE model development and validation
Meyer, F; Roth, S; Willinger, R
International Journal of Human Factors Modelling and Simulation, 1(2), 8 JAN 2009, 244-257

Development of an optimum bicycle shifting strategy based on human factors modelling
Lin, T Y; Chen, Y C; Ping, H C
International Journal of Human Factors Modelling and Simulation, 1(2), 8 JAN 2009, 159-173

A general framework for lumbar spine modelling and simulation
Kassem, Ayman H; Sameh, Ahmed
International Journal of Human Factors Modelling and Simulation, 1(2), 8 JAN 2009, 211-224

Uniformity in manikin posturing: a comparison between posture prediction and manual joint manipulation
Lamkull, Dan; Hanson, Lars; Ortengren, Roland
International Journal of Human Factors Modelling and Simulation, 1(2), 8 JAN 2009, 225-243

Simulation of Manual Material Handling tasks in three dimensional spaces
Zhang, Yaxin; Hsiang, Simon M
International Journal of Human Factors Modelling and Simulation, 1(2), 8 JAN 2009, 197-210

"Cyberpsychology: An introduction to human-computer interaction" was recently authored by Kent L. Norman in the Department of Psychology and a founding member of the Human-Computer Interaction Laboratory at the University of Maryland. The book, published by Cambridge University Press, is meant to provide a basic psychology background for students in computer science with an emphasis on human-computer interaction and for students in psychology who need to understand how psychology has changed in the digital age. The book has 16 chapters that cover theory and modeling, empirical research in HCI, the sensory-motor interface, aspects of learning and memory, cognitive psychology, and language (human and computer). In addition, it deals with individual differences and special needs, social computing, psychopathologies and cybertheories, digital gaming, and our relationship with artificial intelligence. Chapters include suggested exercises and a website is being built to provide instructors with lecture materials and a bank of test items (www.iap.umd.edu/cyberpsychology).
TEXAS TECH UNIVERSITY'S PSYCHOLOGY DEPARTMENT invites applications for a tenure-track Assistant Professor position in HUMAN FACTORS/APPLIED EXPERIMENTAL to begin August 2010. The position requires an earned Ph.D., ability to teach undergraduate and graduate psychology courses, mentor students, conduct a productive research program with potential to secure external funding, and provide University service. Specialty area is open. Some preference will be given to human factors researchers that have a cognitive orientation and focus, as well as to those whose research complements that of current faculty. Successful candidates will have a strong psychology background, training in human factors or experimental psychology, and an ability to integrate basic and applied research. The Human Factors program is fully accredited by HFES. For more details, see http://www.depts.ttu.edu/psy/news/facultyopenings.php. The Department has approximately 100 doctoral students in applied cognitive, human factors, social, clinical and counseling (both APA-accredited). Our research programs encompass departmental, campus, community and national/international collaborations. Lubbock is a temperate, low-cost metropolitan area of 200,000 people with a large medical community and an affiliated Health Sciences Center. To apply, please go to the TTU Employment website (https://jobs.texastech.edu), select the requisition #79448, and create a profile that includes a cover letter, vita, documentation of research and teaching effectiveness, reprints, and three letters of reference. Items submitted by mail, such as reprints and letters of references, should be sent to the Search Committee Co-Chair: Dr. Keith S. Jones, Department of Psychology, Texas Tech University, Lubbock, Texas, 79409-2051; keith.s.jones@ttu.edu. Initial screening begins September 28th and will continue until the position is filled. Texas Tech University is an Affirmative Action/Equal Opportunity Employer. We strongly encourage applications from women and minorities, and we consider the needs of dual-career couples.

Human Factors and Applied Cognition. George Mason University. The Department of Psychology has a tenure-track, junior-level professorship available to begin in Fall 2010. We seek cognitively oriented human factors researchers who closely integrate theory and application. The position is open to a variety of research specializations, as long as the research advances cognitive theory in the context of real-world problems. We particularly seek researchers working on applications in areas such as, but not limited to, transportation, medical systems, and human-computer interaction. The successful candidate will be part of the Arch Lab, which consists of 8 full-time faculty, 6 adjunct faculty, and about 35 graduate students. Arch Lab members conduct research in attention, audition, biological motion, eye movements, imagery, memory, and visual perception as applied to such domains as automation, aviation, driving, robotics, and human-computer interaction. Work in the lab is primarily focused on behavioral and computational methods of research, but convergent evidence from cognitive neuroscience (ERPs, fMRI, TMS) plays an integral role in many of our research programs. See http://archlab.gmu.edu. Candidates for higher ranks may be considered if they are able to bring external research funding with them. Candidates must demonstrate scholarship capable of attracting external funding and strong teaching potential/experience at both undergraduate and graduate levels.

Applicants must apply online at http://jobs.gmu.edu and write in position number F9235z. Applications should include (a) cover letter, (b) a vita, (c) research and teaching statements, and (d) three representative research reprints. [Non-electronic reprints may be mailed to Ms. Ridley]. In addition, three letters of reference should be submitted, either online to sridley@gmu.edu or via regular mail to Ms. Susan Ridley, Human Factors and Applied Cognition Search Coordinator, George Mason University, MS 3F5, Fairfax, Virginia 22030-4444. The search committee will begin reviewing applications on October 1, 2009, and continue until the position is filled.
Postdoctoral Research Position in Cognitive Modeling and Aviation Human Factors

The Computer-Human Interaction Laboratory at Rice University currently has an opening on a NASA-sponsored project entitled "A Transparent Research Environment for Aviation Modeling." This work is focused on ACT-R computational modeling of commercial airline pilots with the larger goal of informing large-scale simulations of air traffic management systems as part of the next generation of U.S. air traffic management.

The primary responsibilities of the postdoctoral researcher will be performing task analyses of benchmark piloting tasks, transforming those task analyses into ACT-R models, and interfacing those models with a medium-fidelity flight simulation environment, X-Plane. Collaborators at the University of Illinois will provide human data for model comparison and validation.

Requirements include a Ph.D. in cognitive science, computer science or psychology with cognitive modeling experience, preferably but not necessarily using the ACT-R cognitive architecture. Previous experience with aviation human factors is also desirable but not necessary. U.S. citizenship or permanent residency (i.e., Green Card) is required.

Applications will be reviewed beginning on October 1, 2009 continuing until the position is filled. The position may be available as soon as October 15, 2009. Salary is expected to start at approximately $45,000 per year depending on qualifications.

Interested individuals should send a curriculum vitae, a statement of research interests, names of three references, and a cover letter to Mike Byrne at byrne@rice.edu or via snail mail:

Mike Byrne
Rice University
Department of Psychology
6100 Main St., MS-25
Houston, TX  77005
Assistant/Associate Professor of Psychology September 2009

POSITION ANNOUNCEMENT

University of Dayton—The Department of Psychology invites applications for a tenure-track faculty position at the Assistant or Associate Professor level beginning Fall 2010. We are interested in candidates from the areas of cognitive psychology, biopsychology, or social psychology who are able to make contributions to the university’s interdisciplinary research initiatives in human performance and human effectiveness in association with the University of Dayton Research Institute and Wright-Patterson Air Force Base. The candidate’s research may be basic or applied. The candidate must have a Ph.D. in psychology along with strong teaching skills and a demonstrated record of programmatic research. Candidates applying for a higher rank should have outstanding research and teaching records. Responsibilities of the position include teaching undergraduate and graduate courses in statistics and/or research methods, as well as courses in his or her specialty. Other responsibilities include advising and mentoring undergraduate and graduate students and supervising graduate master’s theses. Experience teaching and advising students from diverse backgrounds is desired. Apply online: Submit cover letter, CV, statements of research and teaching interests, selected articles, copies of teaching evaluations, and unofficial transcripts (undergraduate and graduate) at http://jobs.udayton.edu. In addition, three signed letters of recommendation should be sent to: Dr. Jack Bauer, Chair, General Search Committee, Department of Psychology, University of Dayton, Dayton, OH 45469-1430. For full consideration, applications and all related materials are due no later than Nov. 15, 2009, though the position will remain open until filled. Additional information can be found via http://www.udayton.edu/arts sciences/psychology and http://www.diversity.udayton.edu. The University of Dayton, a comprehensive Catholic University founded by the Society of Mary (the Marianists) in 1850, is Ohio’s largest independent university and one of the nation’s ten largest Catholic universities. The University of Dayton is firmly committed to the principle of diversity and is an Affirmative Action/Equal Opportunity Employer. Persons of color, women, individuals with disabilities and veterans are encouraged to apply.
Call for Papers: Behavioral Representations in Modeling & Simulation (BRIMS) 2010

You are invited to participate in the 19th Conference on Behavior Representation in Modeling and Simulation (BRIMS). BRIMS enables modeling and simulation research scientists, engineers, and technical communities across disciplines to meet, share ideas, identify capability gaps, discuss cutting-edge research directions, highlight promising technologies, and showcase the state-of-the-art in applications. The BRIMS Conference will consist of many exciting elements in 2010, including special topic areas, technical paper sessions, special symposia/panel discussions, and government laboratory sponsor sessions. For additional information, the BRIMS 2010 official website will open early this week (www.brimsconference.org).

BRIMS 2010 includes a dynamic and eclectic lineup of keynote speakers:

Wayne Gray, PhD
Rensselaer Polytechnic Institute, http://www.rpi.edu/~grayw/

LCDR Joseph Cohn, Phd

Jerrold Post, MD
George Washington University, http://www.gwu.edu/~elliott/faculty/post.cfm

Robert Axtell, PhD
George Mason University, http://www.santafe.edu/profiles/?pid=79

The BRIMS Executive Committee invites papers, posters, demos, symposia, panel discussions, and tutorials on topics related to the representation of individuals, groups, teams and organizations in models and simulations. All submissions are peer-reviewed.

Key Dates:
All submissions due: December 21, 2009
Tutorial Acceptance: February 1, 2010
Authors Notification: February 1, 2010
Final version due: February 19, 2010
Tutorials held: March 22, 2010
BRIMS 2010 Opens: March 23, 2010

SUBMISSION PROCESS
Submissions are handled on-line at the BRIMS website, visit www.brimsconference.org for online submissions. Please see the guidelines on the BRIMS website for format requirements and content suggestions. If you have any questions about the submission process or are unable to submit to the web site, please contact Jeanne Eury by email (jeury@lodestar-group.com) or phone 919-326-0278.

ACCOMMODATIONS and REGISTRATION
The conference will be held at the Charleston Harbor Resort & Marina with conference rates and limited government per diem rates available.
Visit www.charlestonharborresort.com for general information about the site and accommodations. Conference and hotel registration, general area, and travel information can be found at www.brimsconference.org.
The Human Performance Modeling -Technical Group Mission

The HPM-TG focuses on the development and application of predictive, reliable, and executable quantitative models of human performance.

These models consider the human engaged in some goal-directed behavior in the context of a specific task environment.

The HPM-TG equally promotes models of physical activity, isolated aspects of human performance, models of integrated perceptual, cognitive, and motor systems, and integrative ergonomic modeling.

http://www.hfes.org/hpmtg/

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The Human Performance Modeling Technical Group is a group with the Human Factors and Ergonomics Society (HFES). For more information about the HFES, please visit www.hfes.org.