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# Welcome



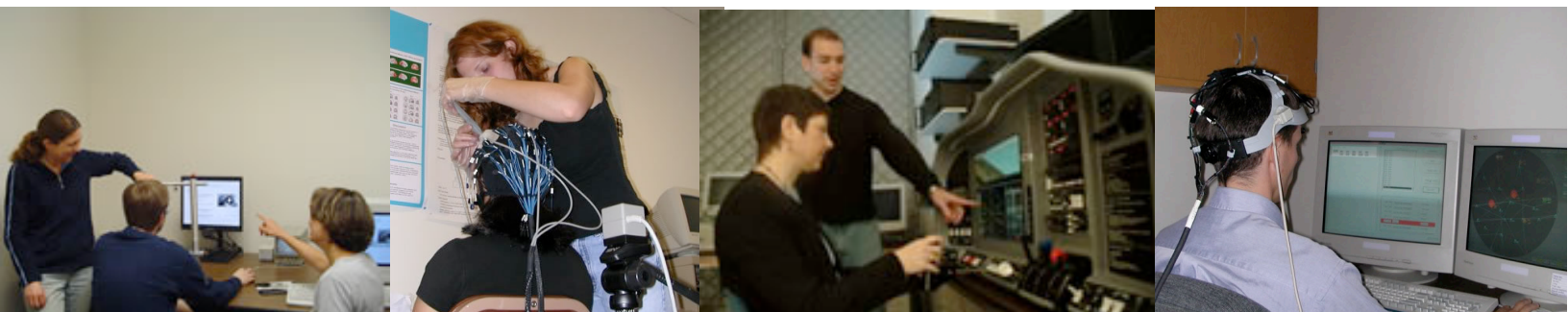
**Carl Smith**

GMU HFES Student Board President

This year has seen big changes and huge progress from the HFES student group! In just over two years, we have grown from a small group of dedicated students to a large, active student group striving to make a name for George Mason University both locally and nationally. The growth of the student group has led to several activities over the course of this year. In the 2005-2006 academic year, the GMU HFES Student Chapter will have hosted 8 speakers at GMU, participated in 6 community presentations to increase human factors awareness, and participated in a joint symposium with the Virginia Tech Human Factors Student Chapter.

While the actions of our group are certainly noteworthy, we must be cognizant that our student chapter will only persevere through the energetic and continuous development of an active chapter membership. For our student group to continue to grow in size and prestige, it is critical that new and continuing students be brought into the fold. For those students who are currently attending GMU, take notice of the many HFES opportunities for students

to become involved. For faculty, encourage your students to participate in student group activities. For friends of the Arch Lab, feel free to attend our many events announced in this newsletter and over the Arch Lab listserv! It is only through the participation and support of all those associated with the Arch Lab that the GMU student chapter can continue to flourish as a viable student organization.



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# Neuroergonomics

an interview with Dr. Raja Parasuraman

**GA:** Why don't we start with "What is neuroergonomics?"

**RP:** It's basically the study of brain mechanisms in cognition, but not in isolation – in relationship to real world settings of work, transportation. Any activity that's outside the laboratory

**GA:** So is this a new term, or a new concept altogether?

**RP:** It's a new concept because people who have been interested in studying mechanisms of the brain have not been interested in studying mechanisms in the workplace, and those who have been studying people in the workplace, human factors and ergonomists, have not been interested in the brain, more or less. So in that sense it's new - it's bringing a new application area for neuroscience, and a new theoretical perspective for human factors.

**GA:** Now, I understand that you coined the term "neuroergonomics." Is this something everyone has been converging on, or is there a specific point of origin?

**RP:** Well, I guess I've become associated with it because I personally found myself doing separate research in the two areas - I was doing cognitive neuroscience work on brain mechanisms and I was doing human factors work trying to link cognition to work. Then I said, "Hey, you know, there's really no reason for the separation of the two." Why are we studying the brain in relation to cognition? Because we think we can get a better understanding of cognition. Therefore, why should that apply only in the restricted lab situation? It should apply in the work setting with human factors. So I started doing that, and maybe it struck a sympathetic chord in a few other people, and so some people have come on board the bandwagon.

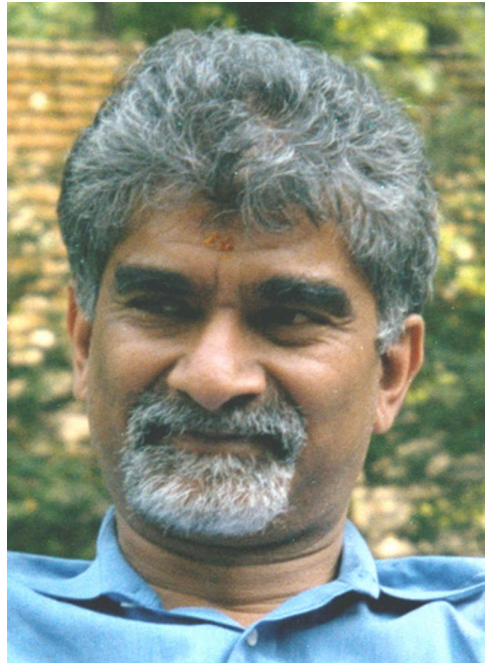
**GA:** Do we lose something, though, in studying cognitive function out in the workplace, in terms of isolating variables, and the like?

**RP:** Yeah. There's a danger that you can't control variables. That's why you have to have levels of simulation, or levels of ecological validity.

**GA:** So really to get a comprehensive understanding of something, you'd advocate researching at all points along the continuum from complete isolation to real life.

**RP:** Yeah, but the other thing is, cognitive neuroscience only became possible because of technology. People have been interested in the brain since the 1800's. They just couldn't look inside the brain. Then we had EEG and then neuroimaging with MRI. And it is the same thing in the workplace. People started off with time and motion, then they developed questionnaires, but now we have all kinds of techniques for measuring behavior and also brain function in the real workplace.

The term "Cognition in the Wild" came about by a number of cognitive scientists who said that you need to study cognition in natural surrounding, because the way people interact with technology and share information is a little bit different than what we are studying in the lab, where we give discreet tasks. But my colleague Matt Rizzo, who is writing this new book with me on neuroergonomics, has coined the term "Brain in the Wild," by analogy. So the idea is that with technology, by putting wireless sensors on people, you can measure activity. You can see where people are going. You can measure heart rate unobtrusively. Even eye movements, and perhaps, in the future, even EEG remotely, as people are going about their work and their daily lives. I think as these technologies for monitoring people become cheaper and more reliable and robust, you're going to see more ergonomics kind of work.



Dr. Parasuraman is a professor of psychology at GMU. He has long-standing research programs in human factors and cognitive neuroscience, is a National Associate of the National Academy of Sciences and recently received the Franklin V. Taylor Award for lifetime achievement in Applied Experimental and Engineering Psychology.

**GA: I know you're doing a lot of work in attention. What other areas are being studied with this approach?**

**RP:** People are looking at things like stress in the workplace. Peter Hancock is interested in using neuroergonomics to study effects stress and fatigue in the workplace, and those are traditionally areas where people have used physiological measures. Art Kramer at Illinois is interested in using eye movements in more realistic scenes, and linking it to theories of brain function. It is important to make the point that to do a study in neuroergonomics doesn't mean you have to use EEG or whatever. My goal is to say that you can do simple behavioral measures, but you need to ground the measures in a theory of brain function.



**GA: So do you think, in the long run, neuroergonomics will not be a subset of human factors research, but it will become the "framework" for human factors research?**

**RP:** Well, I think that's a little optimistic. I think it will never replace the whole field completely, because human factors is a practical domain as well as a research domain. To do a usability analysis, you don't necessarily need to know what's going on inside the user's brain in terms of solving a particular problem for software or a product. But in the research domain, I think ultimately, yeah. I'm not sure it will get there. But I think it should. All areas of human factors research in my view would benefit from knowledge of brain mechanisms.

**GA: Do you see there being neuroergonomics departments, then?**

**RP:** I'm against institutionalization; I think it can really stifle imagination. I wouldn't want to have a Ph.D. program in neuroergonomics. Matt Rizzo, who is at the University of Iowa, has a division of neuroergonomics, but that's within the medical school. I just think that any field that's dealing with human beings and cognition and work would benefit from this approach. I think of it more as an approach.

**GA: Any last words you want anyone to know about neuroergonomics?**

**RP:** Well, there's a book coming out by Oxford University Press, by myself and Matt Rizzo. It should be out hitting the bookshelves this summer.

**GA: What's it called?**

**RP:** "Neuroergonomics, the Brain at Work"

**GA: Thanks. We're looking forward to it.**

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## New Faculty for 2006

The Arch Lab welcomes Maria Kozhevnikov, Ph.D., an Assistant Professor of Psychology at Rutgers University, who will join the Arch Lab faculty in August of 2006. Dr. Kozhevnikov received her doctorate from the University of California, Santa Barbara. Her research focuses on the neural mechanisms of visual/spatial imagery, visual cognitive style, and spatial navigation performance.

The Arch Lab also welcomes James Thompson, Ph.D., a research associate at the Center for Advanced Imaging in the Department of Radiology at West Virginia University, to its faculty in August of 2006. Jim received his doctorate from the Swinburne University of Technology in Melbourne, Australia. He is a cognitive neuroscientist whose research focuses on the neural and cognitive basis of biological movement recognition.

# Designs We Love To Hate!

ARCH Lab Graduate Students Speak Out

**Brandon Beltz**

My biggest system pet peeve is the design of Northern Virginia roads (or lack thereof). Need I say more? I have a theory that Mapquest secretly funds the people who design Northern Virginia roads because I have to use Mapquest even to find the nearest grocery store! 100 points to whoever can name how many different names VA 28 has.



**Katherine Muse**

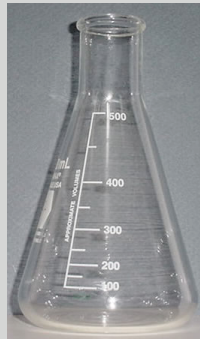
Pet peeve: door handles. Some (single) doors have a bar that goes straight across and so just by looking at it, it is hard to figure out which side of the bar to push on in order to open the door. Also, sometimes establishments (e.g. Restaurants) put pull bars on doors that are supposed to be pushed open. It just goes against intuition! I have seen several people mistakenly pull on the door and then realize it doesn't work that way.



**Ewart Jan de Visser**

Long live the liter!

The worst design on earth, in my opinion, is the USA's measurement system. As a European I have trouble dealing with items such as inches, gallons, miles, and feet. According to the U.S. Metric Association (Indeed, such an organization exists) American students are often confused by the mishmash of measurement units. In addition, the names of the units are not flexible. What is the next smallest thing to a mile? A smile? I think it is time to embrace the Metric Conversion Act passed in 1975 and start to reject the ounces and the pounds. We don't need the extra weight of spending time on converting units.



**David Cades**

MS Word Auto Formatting. We have all had the experience of typing up a document and then the program takes over and tries to guess what type of formatting (i.e. paragraph spacing, text font, bulleting system) we want. I would say it is correct about 25% of the time, and even that might be generous. We are so far gone from the days of the mindless typewriter, which has been replaced with automation will all the best of intentions, but no opportunity to correct it. Numerous times I have had to fudge formatting to look similar because the program would not let me have direct control. I would not mind the system making suggestions or even at times implementing ideas, but the user needs to have the last say, because sometimes we just want it that way.



**Julie Naga**

Double information entry system on the US Postal Services automated shipping system in each branch's lobby. It is a touchscreen interface but, there is also a number keypad on the adjoining surface. A gentleman begins the process of going through the various screens and reaching a portion where he has to type numbers in. There is a touchscreen number keypad provided but the other keypad is right there. He attempts to input numbers via the keypad. The machine gives him a non-specific error feedback. He keeps trying the keypad, getting frustrated. If two systems of input exist, both should allow you to input or be specific otherwise!



**Raj Ratwani**



Travelocity and some other travel sites reset your travel details when you click the back button on your browser after the initial search is complete. This can drive you crazy if you have flexible travel plans and are trying to find the most convenient flight. For example, if I am searching for a flight from DC to Los Angeles, I have to enter my departure and arrival city and departure dates. Once the initial search is complete, if I hit the back button to change any travel details (such as departure airport), all of this information is gone!

**Most psychologists** try to publish in series of studies showing a novel theoretical / empirical / applied finding. However, what do you do when you have extremely limited data



**GREG TRAFTON**  
GMU Affiliate/Adjunct Professor  
Research Psychologist - Naval  
Research Laboratory

sources (e.g., you have less than five experts in the domain or data is extremely difficult to get)? In 2005, we had moderate success at publishing low-n studies of experts. We took two approaches. First, we performed in-depth protocol analyses: one study with meteorologists (Bogacz & Trafton, 2005) and one study of expert scientists (Trafton, Trickett, & Mintz, 2005). The second approach we took was to perform protocol analysis of expert astronauts and pair that data with a working robot system that was inspired by the results of the protocol analysis (Trafton et al., 2005). One of the critical

aspects to all these studies was that we had theoretical contributions to make in all cases, so it was not just that the data was interesting (though that was certainly a part of it).

# Exciting Advances in 2005



**I think an important** development in Applied Cognitive Psychology is a movement toward establishing more ecological validity in research by combining "in vivo" research with more traditional laboratory research. The use of authentic tasks and observational techniques in "in vivo" research provides many insights into behaviour within a natural environment, and is an excellent source of hypotheses. Important characteristics of the task and the environment can then be imported into the laboratory, where the hypotheses can be investigated with better experimental control. This combination of methodologies, supported by techniques such as verbal protocol analysis and eye-tracking data, offers unique opportunities to understand the cognitive processes involved in complex, real-world problem-solving.

**SUSAN TRICKETT**  
GMU Affiliate Faculty  
National Research Council  
Post-Doctoral Fellow at NRL



## Exciting Advances...

**Probably our most exciting discovery** this year has to do with people's memory for examined items during visual search and scene perception. If, during an eye movement, we change an examined item's identity, people avoid that item. This suggests people remember examined locations. However, if instead, we move an examined item to a new location, people treat it as if it is a new item and reinspect it. It is as if people have a memory for the locations of examined items, but no memory for their identity. Indeed, if we stop people during scene inspection and quiz them about items they have recently fixated, their memory for the items' identities is extremely poor -- in fact, people can barely remember the item they had just looked at. Some preliminary results using real-world scenes suggest that people do remember what they have seen; the difficulty is in retrieving the information from memory. This identity vs. location disconnect maps nicely to what vs. where distinction between the ventral and dorsal visual streams.

**MATT PETERSON**  
GMU Assistant Professor  
Visual Attention & Cognition  
Research Group



**Rough fractal patterns** that express themselves as scaling relations are ubiquitous throughout nature. An easy-to-imagine example is the coastline of Britain: the twists and turns that one sees from three miles up are different from those seen at 300 feet up, yet they have the same statistical character. There are

theories of fractal geological formation, and of many other classes of fractal phenomena, but none of them answer the question of why scaling relations are so ubiquitous. In our lab this year, we worked on one scaling relation in the fluctuations of human behavior, and another in the relations among the orthographic forms of English words (i.e., their spellings). The first scaling relation is  $1/f$  noise, one of the most widespread mysteries across the sciences.  $1/f$  noise has been found in the fluctuations of many kinds of human behaviors, and we found strong evidence that  $1/f$  noise is a law of the intrinsic fluctuations of human behavior, as lawful as Fitts' or Weber's or any other law of human behavior. The second scaling relation is found in the topology of networks throughout nature (e.g., neural networks, social networks, the internet, etc.), and we discovered it in a simple but novel "networking" of English word forms. In particular, we made a network by linking together any two words for which one is a subset of the other (e.g., "red" in "reduce", "in" in "swing"). We found another perfectly lawful scaling relation in the probability of finding a word with  $N$  links, scaled as a function of  $N$ . We are

now working on what these two scaling laws might tell us about the fractal basis of human cognition and behavior.



**CHRIS KELLO**  
GMU Assistant Professor  
Cognitive Dynamics  
Research Group  
Director - NSF Perception,  
Action and Cognition Program

# The Next Wave

## Goings on of GMU HFES Students

### Entering the Workforce

#### **Anthony Novak**

M.A. Human Factors & Applied Cognition

#### **Interests/Strengths**

- Human-Computer Interaction
- Automation
- Operator Performance/Awareness Optimization-Assessment
- Game Development and Theory

#### **Contact Info**

- Email [anovax@gmail.com](mailto:anovax@gmail.com)

#### **Tim Sherwood**

M.A. Human Factors & Applied Cognition

#### **Interests/Strengths**

- Educational Computer Applications
- Interface Research - Medical/Health System
- Web Skills (HTML Perl, Python, MySQL)
- Programming (C++, Java)

#### **Contact Info**

- Email [ta\\_sherwood@yahoo.com](mailto:ta_sherwood@yahoo.com)

#### **Katherine Muse**

M.A. Human Factors & Applied Cognition

#### **Interests/Strengths**

- Aviation, Defense or Intelligence Fields
- Applied Analysis
- Bilingual-Spanish

#### **Contact Info**

- Email [K.L.Muse@gmail.com](mailto:K.L.Muse@gmail.com)

#### **Pam Reichers**

M.A. Human Factors & Applied Cognition  
(May 2006)

#### **Interests/Strengths**

- Human-Computer Interaction
- Interface Design
- Visual Attention
- Usability Experience (HTA, User Testing, etc.)

#### **Contact Info**

- Email [pamreichers@yahoo.com](mailto:pamreichers@yahoo.com)

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#### **Sarah Henrickson**

M.A. Human Factors & Applied Cognition

#### **Interests/Strengths**

- Medical Human Factors
- Divided Attention
- Workload Management
- Cognitive Neuroscience
- Attentional changes due to age

#### **Contact Info**

- Email [shenrick@gmu.edu](mailto:shenrick@gmu.edu)

### Professional Development

- Guest Speakers at Monthly Meetings
  - Tom Mayfield, Evans, Inc.,
  - Dr. Robert Ochsman, Ph.D.,USCPSC
  - Dr. John Ruffner, DCS Corp.
- Joint Symposium with Virginia Tech
- National Ergonomics Month Activities

# The Next Wave

## Goings on of GMU HFES Students



Alumni Guest Speakers



Arch Lab Crew



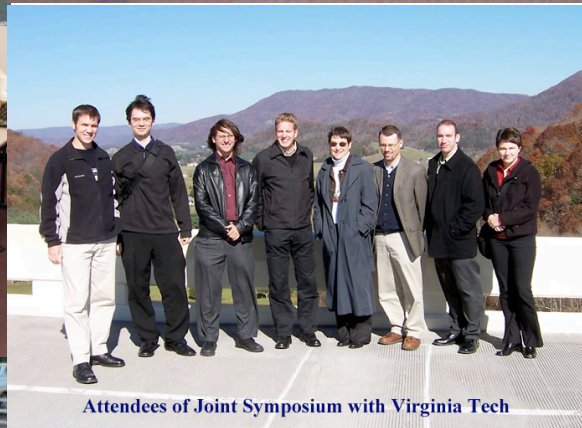
Food,



Big Style Points for Mike



Food, and...



Attendees of Joint Symposium with Virginia Tech



More Food!



Arch Lab Jocks Working up a Sweat

# The Beat

Just so you don't think it's all fun and games around here, check out this list of publications and presentations by Arch Lab students and faculty this year

## Journal Publications

**Visual search in temporally segregated displays: Converging operations in the study of the preview benefit**

Belopolsky, A., Peterson, M. S., & Kramer, A. F.,  
Cognitive Brain Research

**Role of memory in visual search: A brief review of a developing literature**

Kramer, A.F., Peterson, M.S., McCarley, J.S., Boot, W.R.  
Quantification of Human Information Processing

**Oculomotor consequences of abrupt object onsets and offsets: Onsets dominate oculomotor capture**

Boot, W. R., Kramer, A.F., & Peterson, M.S  
Perception and Psychophysics

**Dissociations in performance on novel versus irregular items: Single-route demonstrations with input gain in localist and distributed models**

Kello, C. T., Sibley, D. E., & Plaut, D. C.  
Cognitive Science

**Brain mechanisms of involuntary visuospatial attention: an event-related potential study.**

Fu S., Greenwood P., & Parasuraman R.  
Human Brain Mapping

**Event-related potentials reveal dissociable mechanisms for orienting and focusing visuospatial attention.**

Fu S., Caggiano D., Greenwood P., & Parasuraman R.  
Cognitive Brain Research

**Evaluating the psychometric properties of a clinical and a self-report blind rehabilitation outcome measure**

Babcock-Parziale, J., McKnight, P.E., Head, D.N.  
Journal of Rehabilitation Research and Development

**A capacity model of individual differences in frontal EEG asymmetry**

Coan, J.A., Allen, J.J.B., and McKnight, P.E.  
Biological Psychology

**Development of a Chinese Medicine Assessment Measure: An Interdisciplinary Approach using the Delphi Method**

Schnyer, R, Conboy, L, Jacobson, E, Mc Knight, P, Goddard, T, Moscatelli, F, Legedza, A, Kerr, C, Kaptchuk, T, and Wayne, P.  
Journal of Complementary and Alternative Medicine.

**Neural and genetic assays of human mental workload.**

Parasuraman, R., & Caggiano, D.  
Quantifying Human Information Processing

**Connecting internal and external representations: Spatial transformations of scientific visualizations**

Trafton, J.G., Trickett, S.B., & Mintz, F.E.  
Foundations of Science

**Understanding Dynamic and Static displays: Using Images to Reason Dynamically**

Bogacz, S. & Trafton, J.G  
Cognitive Systems Research

**Collaborating with Humanoid Robots in Space.**

Sofge, D., Bugajska, M., Trafton, J. G., Perzanowski D., Thomas S., Skubic M., Blisard S., Cassimatis N., Brock D., Adams W, & Schultz A.  
International Journal of Humanoid Robotics

**Enabling effective human-robot interaction using perspective-taking in robots**

Trafton, J.G., Cassimatis, N.L., Bugajska, M. D., Brock, D.P., Mintz, F.E., & Schultz, A.C.  
IEEE Transactions on Systems, Man, and Cybernetics---Part {A}

**Towards collaboration with robots in shared space: Spatial perspective and frames of reference.**

Schultz, A. C., & Trafton, J. G.  
Interactions

**Consequences of shifting from one level of automation to another: main effects and their stability**

Di Nocera, F., Lorenz, B., & Parasuraman, R.  
Human Factors in Design, Safety, and Management

**Specificity of the effect of a nicotinic receptor polymorphism on individual differences in visuospatial attention**

Greenwood, P. M., Fossella, J., & Parasuraman, R  
Journal of Cognitive Neuroscience

**Effects of Apolipoprotein E genotype on spatial attention, working memory, and their interaction in healthy, middle-aged adults: Results from the National Institute of Mental Health's BIOCARD Study**

Greenwood, P., Lambert, C., Sunderland, T., & Parasuraman, R.  
Neuropsychology

**Human-automation interaction**

Sheridan, T., & Parasuraman, R.  
Reviews of Human Factors and Ergonomics

# The Beat

## Conference Presentations

### **The neural correlates of dual-task performance after minimizing effects of task-preparation**

Erickson, K.I., Colcombe, S.J., Wadhwa, R., Bherer, L., Peterson, M.S., Scalf, P.E., Kim, J., Alvarado, M., & Kramer, A.F. , 11th Annual Meeting of the Organization for Human Brain Mapping. Toronto, Canada

### **Distractor location, but not identity, is remembered during visual search**

Peterson, M.S., Beck, M.R., Boot, W.R., Vomela, M. & Kramer, A.F. Psychonomics, Toronto, Canada

### **Use of a Functional Aviation Display Under Varying Workload Conditions**

Smith, C.F., Fadden, S., & Boehm-Davis, D.A.  
HFES 49th Annual Meeting, Orlando, FL

### **Using simple recurrent networks to learn representations of linguistic sequences**

Kello, C. T., Sibley, D. E., Proceedings of the Annual Summer Interdisciplinary Conference. Briancon, France.

### **Now Where Was I? Recovering From Interruptions**

Monk, C., Virginia Tech HFES Student Chapter joint meeting

### **Involuntary visuospatial selective attention to the upper and lower visual field: an event-related potential study**

Fu S., Wang Y., Luo Y., Greenwood P., Parasuraman R.  
Annual meeting of Society for Neuroscience, Washington, DC.

### **Critical multiplism in social science measurement.**

McKnight, P.E. , Presentation at the Joint Canadian Evaluation Society and American Evaluation Association Conference. Toronto, Canada.

### **Testing critical multiplism through simulation studies.**

Najab, J. and McKnight, P.E.  
Presentation at the Joint Canadian Evaluation Society and American Evaluation Association Conference.  
Toronto, Canada.

### **A comprehensive evaluation of critical multiplism in measurement.**

Chen, M.K., McKnight, P.E., Najab, J., and Menke, J.M.  
Presentation at the Joint Canadian Evaluation Society and American Evaluation Association Conference. Toronto, Canada.

### **Creating virtual populations for cross-validation.**

Najab, J., Sechrest, L., and McKnight, P.E.  
Presentation at the Joint Canadian Evaluation Society and American Evaluation Association Conference. Toronto, Canada.

### **Visual presentations: The rudiments of conveying complex ideas in visual formats.**

McKnight, P.E. and Menke, J.M., Workshop presented at the Joint Canadian Evaluation Society and American Evaluation Association Conference. Toronto, Canada.

### **Adaptive Change in the Type of Automation Support Reduces the Cost of Imperfect Decision Aids in a Simulated Battlefield Engagement Task**

Kathleen McGarry, Ericka Rovira & Raja Parasuraman  
\*Award: Best Student Paper for the Cognitive Engineering and Decision Making Technical Group., HFES in Orlando, FL

### **The Peer-to-Peer Human-Robot Interaction Project**

Fong, T., Nourbakhsh, I., Kunz, C., Fluckiger, L., Schreiner, J., Ambrose, R., Burrridge, R., Simmons, R., Hiatt, L.M., Schultz, A., Trafton, J. G., Bugajska, M., & Scholtz, J.  
Proceedings of AIAA Space 2005, AIAA-2005-6750, Long Beach, CA

### **The long-term disruption effect: A comparison of three memory models**

Trafton, J. G., Altmann, E. M., & Brock, D. P.  
The proceedings of the 2005 ACT-R conference

### **Perspective-taking with robots: Experiments and models**

Trafton, J.G., Schultz, A.C., Bugajska, M.D., & Mintz, F.E.  
RO-MAN 2005 – 14<sup>th</sup> IEEE International Workshop on Robot and Human Interactive Communication, Nashville, TN.

### **Huh, what was I doing? How people use environmental cues after an interruption.**

Trafton, J. G., Altmann, E. M., & Brock, D. P.  
Proceedings of the Human Factors and Ergonomics Society 49th Annual Meeting

### **Shedding Light on the Graph Schema**

Ratwani, R.M. & Trafton, J.G.  
The proceedings of the twenty-seventh annual conference of the cognitive science society Stresa, Italy

### **Representation Matters: The effect of Graph Selection on Data Interpretation**

Trickett, S. B., and Trafton, J. G. Poster presented at the Annual Meeting of the Cognitive Science Society, Stresa, Italy

### **Defining the Challenges Operators face when Controlling Multiple Unmanned Vehicles**

Squire, P. , HFES, Orlando FL

### **Individual differences in the gradient of visuospatial attention in healthy aging**

Henrickson, S., Greenwood, P.M., Chavez, C., & Lambert, C.  
Annual meeting of Society for Neuroscience, Washington, DC.

# A Moment With...

## Patrick McKnight

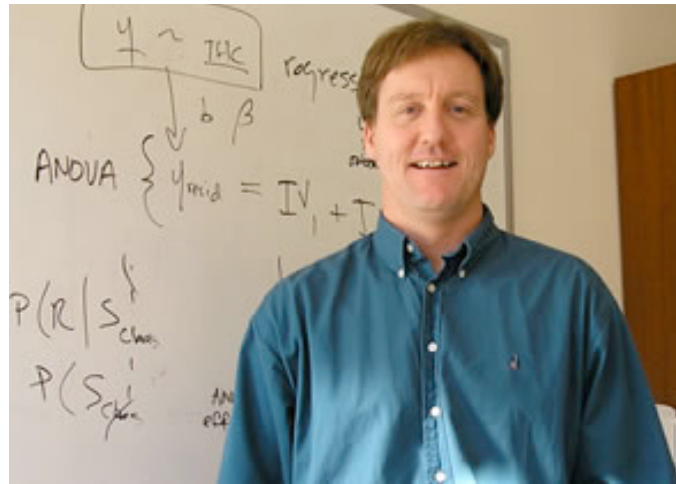
by Gregory Anderson

**GA:** Welcome. I see that you're quite well represented on our list of publications [in the newsletter]. Can you sum up your main area of focus these days?

**PM:** Well, I'm always interested in measurement; that's my main concern - how to improve measurement and how to improve decisions about measurement - basically evaluating the tools around psychometrics and the big perspective of measurement in general.

**GA:** Do you find you need to tailor your work to specific disciplines, such as human factors?

**PM:** I work in all different disciplines. I am primarily a health services researcher. I work with health services specialists in particular areas like arthritis, cancer, chronic pain, cardiology and others, and what I do is to help them craft a better instrument, start an instrument from scratch or evaluate existing instruments. My work is very applied. Even though I'm not a cognitive psychologist, most of what I do is very cognitively oriented.



Patrick McKnight  
Assistant Professor of Psychology at GMU

**GA:** Tucson has got to be completely different from the DC area. Has it been a big cultural or climatic adjustment for you?

**PM:** Well, I'm from the East Coast; I'm a New Yorker, so I really feel at home on the East Coast. And I actually prefer seasons - that was one of my biggest drives back here. I wanted to be in a place where I could experience four real seasons.

**GA:** Do you have a big push in mind for our department - are you on a mission?

**PM:** I would say that my biggest push coming here is to be part of an ongoing development for research methodology and data analysis - measurement. And to develop an emphasis that can be applied in a variety of different fields. I hope by coming here I can collaborate with other faculty members here and develop a program, in essence a sub program that overlaps with I/O, Human Factors, Clinical, what have you, so that people can have a minor, or even a major emphasis in measurement, research methods and evaluation of statistics.

**GA:** Do you have a single message you want to get out to people about measurement?

**PM:** A single message? Pay attention. I'd say that most of what we do in social and behavior sciences fails at two levels - it fails at the level of theory. Too much of it right now I believe is driven mostly by just empirical results - atheroetical investigations. And the 2<sup>nd</sup> is that once we end up trying to test things, most of us, including myself, do a very half-assed job with measurement. So that's one of the reasons why I've attended to measurement because I know that even I screw up and take short-cuts. Measurement is hard. If we can just get people to attend to it and care about it, then I think we're going to be better off.

**GA:** Awesome. Well, we're glad to have you here.

**PM:** Thanks. I'm very happy to be here.

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## Parting Thoughts



**Deborah Boehm-Davis**  
GMU HF/AC Program Chair

At the end of every show, the Public Broadcasting System reminds its audience that the show was brought to you through the support of some organization or individual. To close this newsletter, I would like to remind you that this newsletter and all the wonderful activities described in it are brought to you through the support of our students. In fact, the HFAC program would not be what it is without the fabulous energy, intellect, and efforts of the students.

This year's student group has been extraordinarily active, sharing their research through presentations at professional meetings such as HFES, Neuroscience, and Vision Science; bringing knowledge of human factors to students at the high school and college level through National Ergonomics Month activities; and sharing lots of extra-curricular activities such as movie nights, bowling, and hearty partying. They are enthusiastic, well-balanced between work and play, and they bring honor to our program. On behalf of each of the faculty in the program, let me say how much we are delighted that they have chosen to share their lives with us here at GMU.

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