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Volume 2, Issue 1

Arch Lab Newsletter

Bridging theory, experimentation and application in the cognitive sciences

http://archlab.gmu.edu

Inside this issue:

Upcoming Events:

August 27
- HFAC & I/O Picnic
  Dunn Loring Park

August 29
- Fall semester begins

September 12
- HFES Student Group Meeting

September 26-30
- HFES Annual Meeting, Orlando, FL

Department of Psychology, George Mason University

What's New in the Arch Lab?

A new academic year brings new challenges, new adventures, and new faces! This year is no exception, as we welcome in new students and new faculty, as well as saying goodbye to some familiar faces from the Arch Lab.

New Faces:

New Students: Next time you're in the lab, be sure to say hello to some of our new students on campus. David Cades and Yi-Fang Tsai have joined the doctoral program, with three new students - Michel Brudzinski, Melissa Strader, and Ewart De Visser - joining the masters program. Be sure to get acquainted with our newest additions to the Arch lab – you can read the new student biographies on page 8.

New Faculty: We just keep growing, and this year is no exception. However, our newest faculty is a familiar face to the lab: we're welcoming Dr. Christopher Monk, who received his PhD here at the Arch Lab. Get to know our new faculty with our *Focus on…* Chris Monk this issue on page 2.

Saying Goodbye:

Recent Graduates: Congratulations to all of our students who graduated in May! Check out all the graduation info on page 12.

Some of our proud graduates! From L to R: L. Ricardo Prada, M.A., Cara Stitzlein, M.A., Mohammed T. Rahman, M.A., and Timothy Sherwood, M.A.

Faculty: It is with great sadness that we bid farewell to Dr. Anne Hillstrom. Dr Hillstrom is currently moving overseas to reside in the U.K. We wish Anne the very best – and wish she wouldn't go!

Above, Dr. Anne Hillstrom

As our department grows, so does the newsletter – and we'd like to grow our readership along with it! If you know alumni, friends, family, or anyone else who would like to receive the Arch Lab newsletter, please send an email with their name and email address to mvomela@gmu.edu.

Awards

Congratulations to *Peter Squire* was awarded "Best Student Presentation" by the American Psychological Association for divisions 19 and 21 (military psychology and applied-experimental and engineering psychology, respectively) at the mid-year meeting in March 2005.

Above, Peter Squire accepting the "Best Student Presentation" Award. From L to R: President of APA Division 19 W. Brad Johnson, President of HFES Potomac Chapter Tom Mayfield, Peter Squire, President of APA Division 21 Debbie Boehm-Davis.

Focus on...Dr. Christopher Monk

Dr. Christopher Monk, from Santa Clara, California, attended the University of California, Santa Barbara for his undergraduate degree. He obtained a master's degree in Human Factors and Applied Experimental Psychology from California State University at Northridge.

After graduation, Chris worked for Toyota as a human factors engineer, where he helped develop one of the first in-vehicle navigation systems for Toyota and Lexus. In 1998, he moved to Virginia after nearly four years at Toyota, and started working for the

Science Applications International Corporation (SAIC) as on-site human factors technical support for the Federal Highway Administration. Chris enrolled in the HFAC doctoral program at GMU in 2000. Working as on-site human factors technical support for the National Highway Traffic Safety Administration throughout his time at GMU, Chris graduated with a PhD in August of 2004, and joined the Arch Lab in the Summer of 2005.

Chris's research interests include interrupted task performance and attention switching in complex tasks, and driver distraction and traffic safety. As a new faculty member, he plans to continue his interruptions research, and acquire a driving simulator in order to start some driving research.

In his spare time, Chris likes to read, watch movies, kayak with his wife, and play softball.

GMU Conference Presentations

Electrophysiological evidence for serial attentional shifts during a target discrimination search task.

Caggiano, D. M.[1,2], Fu, S.[2], & Parasuraman, R.[1,2]

[1]Catholic University of America, [2]George Mason University

Poster presented at the Cognitive Neuroscience Society Meeting in New York, NY

The N2pc component of the event-related potential is considered to be an electrophysiological index of serial attentional shifts during visual search (Luck & Hillyard, 1994). Often this component has been studied during target-absent trials of detection tasks that require no motor response in order to eliminate potential response-related contamination of the ERP signal. It is unclear whether this component also can be measured accurately in a target discrimination task that requires participants to respond on every trial. In the current study, participants searched an array of crescent-shaped figures. Distracter crescents opened to the left or to the right, while the target crescent opened either up or down. Target items were always red, and every trial presented the target plus one red distracter in opposite hemifields at one of two possible eccentricities from fixation. Participants discriminated the orientation of near target crescents approximately 100msec faster than they discriminated far targets. Consistent with previous findings (e.g. Woodman & Luck, 2003), waveforms recorded over lateral occipital regions that were contralateral to near targets were more negative relative to the homologous ipsilateral site 230 – 330 msec post-stimulus. However, far targets elicited greater contralateral positivity at this site during the same time frame but more negativity 330-430 msec post-stimulus. The results are consistent with previous activation patterns suggesting that the N2pc indexes serial attentional shifts during visual search. Moreover, our study demonstrates that the N2pc can be measured reliably even when participants respond on every trial.

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

McGarry, K. & Parasuraman, R.

Cathlolic University of America, George Mason University

Presented at the American Psychological Association Division 19 and 21 Conference and the HFES Potomac Chapter Annual Symposium on Applied Experimental Research

Automation that is meant to aid the human operator may actually be detrimental to performance, particularly if decision recommendations are provided (decision automation), compared to information automation. Because automation can be imperfect, operator over-reliance on decision automation can degrade performance. The present study examined whether adaptive changes in the type of automation—between decision and information automation, or between decision automation and manual control—could mitigate the cost of

automation imperfection in a combat engagement selection task. Nine participants were provided with two types of automation (decision and information) and also performed the task manually. In three conditions, the type of automation was alternated during performance of the task over three blocks of trials. In all three conditions, decision automation was provided in the first and the third blocks of the task. The middle block was either decision automation, information automation, or the manual condition. Participants were asked to perform the combat engagement selection task using automation that changed every 10 minutes. Accuracy and response times were compared for type of automation and type of automation change. Accuracy improved on the third section of the task for the condition that altered decision automation with information automation. Once the automation was returned to the higher level after the lower level of automation, performance improved over the first block with the higher level of automation. This suggests that providing the user with periods of lower levels of automation can help mitigate some of the costs of imperfect decision automation.

User Survey of Preferred Audio Alerts of Runway Incursions

McGarry, K.
Cathlolic University of America, George Mason University
Presented at NASA GSRP Orientation 2005

Pilot opinion was solicited on the use of audio alerts in the cockpit to warn of potential runway conflicts. Fourteen pilots were surveyed (with average flight hours of 2969). Pilot opinions were collected about which audio message they believed would be the most useful in alerting them to a potential conflict on the runway. Survey results indicated that great consistency among the pilots in their alert preferences. Pilots showed a strong preference for alerts that indicated position of the conflicting aircraft. For example, in the first scenario, the alert "Warning, traffic approaching 34L" was rated as the most useful alert. Pilots consistently rated the more general alerts (e.g.: "Traffic, traffic") as the least useful alert. These results provide important information for the design of simulation studies to examine the use of audio alerts in the general aviation cockpit to provide warnings of potential runway incursions.

Little is remembered about rejected distractors in visual search

Peterson, M. S.[1], Beck, M. R.[1], Boot, W. R.[2], Vomela, M.[1], & Kramer, A. F.[2]
[1]George Mason University, [2]Beckman Institute & University of Illinois Urbana-Champaign
Poster presented at the Vision Sciences Society conference in Sarasota, FL

During visual search, knowledge about previously examined distractors is used to guide attention towards unexamined items (McCarley et al., 2003 Psychol Sci 14 422-426). Last year, we demonstrated that the spatial location of examined items, rather than the identity or surface features of those items, is used to guide attention towards new items (Beck, Peterson, & Vomela, VSS 2003). In the experiments reported here, we investigate whether any identity information is explicitly remembered about rejected distractors. We used two different search tasks: a conventional search task and the oculomotor contingent task of McCarley et al. (2003). In all experiments, on roughly one third of the trials, search was terminated, an examined location was circled (a place holder marked that location), and observers were quizzed about the item that had been at that location (two alternative forced choice). Although observers clearly had a memory for examined items – they avoided revisiting the last 4 items in the oculomotor contingent experiments – performance in the 2AFC recognition tasks was extremely poor. When asked to discriminate a previously seen letter from one that had not appeared in the display (foil), memory performance was near 75%, regardless of lag. However, when the foil was another item that had been fixated on that trial,

results from the memory task were near chance (56%). This suggests that people do remember the identity of rejected distractors, but their explicit memory for distractors does not include their locations. Interestingly, memory performance for the penultimate item (lag 1) was contingent upon whether the search display was present when the location was probed. When the display was present (items replaced with placeholders) during the memory probe, accuracy for the last examined item improved. This suggests that scene context can help to improve memory performance.

Shedding Light on the Graph Schema

Ratwani, R. M.[1] & Trafton, J. G.[2]
[1]George Mason University, [2]Naval Research Laboratory
Presented at the 37th Annual Conference of the Cognitive Science Society in Stresa, Italy

The current theories of graph comprehension have posited the graph schema as providing us the necessary knowledge to interpret any graph type. Yet, little is known about the nature of the graph schema, and no empirical data exist showing that there actually is a graph schema. In experiment 1 we show evidence that a graph schema does exist, and that graph schemas are not specific to each and every graph type. In experiments 2 and 3 we show that there is a different graph schema for typical and atypical graphs. We interpret these findings as evidence for a prototypical graph schema.

Do instructions alter eye movement data?

Röttger, S.[1] & Caggiano, D. M.[2,3]
[1]Berlin Technical University, [2]Catholic University of America, [3]George Mason University
Poster presented at the Conference of Applied Experimental Psychologists in Regensburg, Germany

While in some eye movement studies on visual search instructions on search speed and search accuracy have been given (e.g. Zelinsky & Sheinberg, 1997; Scialfa & Joffe, 1998), other authors have not employed such directions in order to be able to observe subjects' natural search strategy (Ojanpää, Näsänen & Kojo, 2002). The purpose of our experiment was to examine whether instructions can influence eye movements at all, and if they do, how eye movements differ between typical laboratory instructions (as fast and as accurate as possible) and free, self-paced search. Twelve subjects, participating for the first time in a visual search experiment, performed a combined feature search task within each condition. The order of the instructions was balanced across participants. In spite of the rather large sample size (as compared to typical eye movement studies), no significant differences between eye movements in both conditions were found. Thus, instructions regarding speed and accuracy of visual search do not impair the generalizability of eye movement data, and differences in such instructions do not impair comparison of eye movement data.

Project VIRGO: Creation of a surrogate companion for the elderly

Sherwood, T., Mintz, F., & Vomela, M.
George Mason University
Presented at the conference for Computer Human Interaction in Portland, OR, as part of the Association for Computer Machinery's Special Interest Group on Computer-Human Interaction Student Competition

The Voice Intelligent Reciprocating Gemütlich Orator (VIRGO) was developed from perceptions of companionship held by persons 65 years of age and older. The knowledge gained from ethnographic interaction with segments of the target population was applied toward the creation of a device. VIRGO is expected to fulfill various companionship needs derived from user-centered research, expert advice and those of the sponsor. A brief review of the data collected is provided and implications toward the operationalization of various features of companionship are described. Important findings of the data include the need for activity to continue as a matter of over all health and as a management tool for recovery from a loss. The importance of continued learning and physical activity is

also indicated as a means of maintaining wellbeing. A brief analysis of the findings from design testing and their implications for redesign is also described.

Improving Novice Flight Performance Using a Functional Flight Display

Smith, C. F., & Boehm-Davis, D. A.
George Mason University
Proceedings of the International Symposium on Aviation Psychology 13th Annual Meeting, Oklahoma City, OK.

Supporters of functional interface design argue that direct interaction with the essential functional relationships of a system may aid in the acquisition of domain-specific skill. To evaluate the potential use of a functional display in assisting in the development of piloting skill, twenty novices were trained on either a conventional display or an alternative display that displays the functional relationship of power and airspeed (the Oz display). Novices trained on the functional display showed greater control of power and less deviation from a flight profile over multiple maneuvers. Implications for future research and potential uses in training are discussed.

Improving Knowledge with a Functional Display

Smith, C.F., and Boehm-Davis, D.A.
George Mason University
Presented at the 2005 APA Annual Meeting, 2005, Washington D.C.

No abstract provided.

Effects of Flexible and Restricted Control Interfaces on Human-Robot Performance

Squire, P. N., Mereish, E., & Parasuraman, R.
George Mason University
Presented at the American Psychological Association Division 19 and 21 Conference

Robotic systems typically require multiple operators to oversee and supervise a single asset. Increasing robot autonomy may reduce and even invert this current ratio, so that a single operator can supervise many robots. However, automating a system does not simply replace human activity but transforms the nature of the work in positive and negative ways. Therefore to achieve effective human-robot interaction (HRI) it is important to determine what types of supervisory control interfaces lead to optimal human-robot performance. Past research in HRI has demonstrated that control restricted to only automation can often incur negative effects due to the brittleness of automation algorithms in complex and changing environments. Research has also shown the effectiveness of only manual and flexible delegation (adaptable) control to overcome execution timing deficiencies that occur in an automation only condition. Using a human-in-the-loop evaluation of a playbook-like interface the present study examined in greater depth the challenges and outcomes of a single operator supervising (1) more or less robots than a simulated adversary, with either a (2) flexible or restricted control interface. Testing was conducted with 12 students using the RoboFlag simulation environment. In addition to standard outcome measurements (i.e. mission time, accuracy) additional theoretically-driven metrics (i.e. resumption lag) were used to help assess human performance in this complex working environment. The findings from this research have important implications for understanding the variables that enable (or not) effective human robotic interaction, and enhance the HRI domain by considering additional metrics previously not considered.

Does spatial density affect implicit learning?

Vomela, M. & Peterson, M. S.
George Mason University
Poster presented at the Vision Sciences Society conference in Sarasota, FL

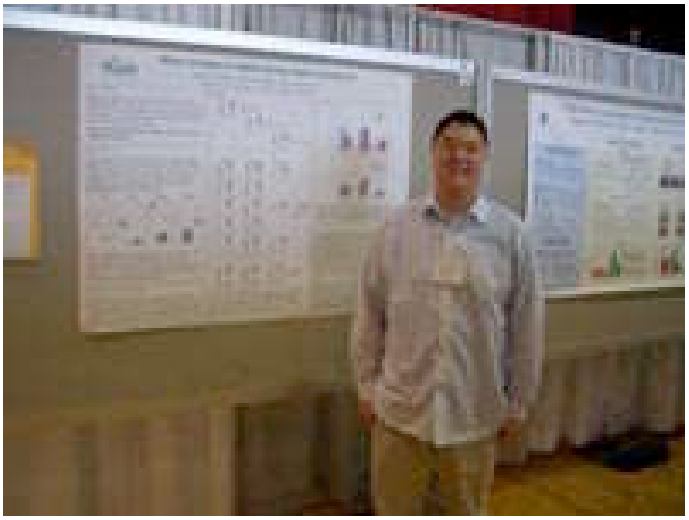
When searching for a target, people implicitly remember the configuration of the search display, showing faster reaction times when the display is later repeated versus new (random) displays. This implicit configuration memory, called contextual

cuing, occurs regardless of stimulus color or jittering, but disappears when the target is moved to a different location in a repeated display (Chun & Jiang, 1998). The relationship between targets and surrounding distractors is clearly important to contextual cuing and suggests that the closeness of distractors to the target may affect observers' memory for context. Targets are more difficult to detect as target-distractor proximities decrease within an individual display (Motter & Holsapple, 2000; Eriksen & Eriksen, 1974), but this effect has not been examined using repeated displays. In the experiments presented here, we investigate how stimulus density affects contextual cueing. We used a traditional search task comprised of rotated T's and L's where a left or right rotated T was the target and stimuli were either monochromatic or contained an equal number of red, yellow, green, and blue stimuli (as in Chun & Jiang, 1998). There were two display densities, sparse and dense, with an equal number of stimuli in each. For the sparse displays, the entire display was used, and for the dense displays, the stimuli were restricted to 1 of 4 quadrants. Each block of trials contained an equal number of new and repeated displays of both densities. Overall, subjects' reaction times were faster for dense displays, possibly because of the smaller search area. Interestingly, the contextual cueing effect was larger for dense displays. One possible explanation is that there are more items close to the fovea in the dense displays, requiring fewer fixations to perceive the configuration.

Which changes to objects disrupt object constancy?

Wong, J. H. [1], Hillstrom. A. P. [1], & Chai, Y. [2]
[1]George Mason University, [2] University of Texas at Arlington
Poster presented at the Vision Sciences Society conference in Sarasota, FL

This study examines what changes to objects disrupt object-based attention in order to understand the nature of object representation. The experiments reported here used the Egly, Driver, & Rafal (1994) cuing paradigm, in which displays contain 2 objects. Responses to a target that appears at an invalidly cued location are faster when the target is in the object containing the cue than when the target appears equidistant but in a different object; this is the result of object-based attention. We used more realistic looking objects and examined what changes occurring between cue and target disrupt object-based attention. When object-based attention is disrupted, we expect to see space-based attention: that all targets equidistant from the object are detected equally fast, regardless of which object they are in. We assume that changes that disrupt do so because the representation has changed radically enough that attention is disengaged from the pre-change object representation. Changes between cue and target, which occurred over 3 frames and 150 ms, included morphing of an object to a new identity; rotation of an object 180 degrees in the picture plane; and translation of an object in a very small circle, maintaining its original orientation. Morphs were expected to disrupt object constancy, resulting in space-based attention, whereas rotation and translation, being events that should not affect object constancy, were expected to demonstrate object-based attention. Translation also controlled for the frame to frame masking found when an object morphs. Results show that morphing resulted in space-based attention, whereas rotation, translation and a no-change condition resulted in object-based attention.



Above photo: Jason Wong standing in front of his poster at the Vision Sciences Society conference.

Brownbags

Dr. Anne Hillstrom, continuing from the fall, organized the spring brownbag speakers. Below is a synopsis of the various speakers, where they work, and what the title of their talk was.

- January 25: Dr. Wendy Rogers, HFES President, Georgia Institute of Technology
  This talk hosted by the HFES student chapter
  Using a Team Decision Making Exercise for Studying Horizontal and Vertical Structure Effects on Team Performance

- February 16: Dr. Ivar Reinvang, University of Oslo, Norway
  Aging, cognition and genetics

- February 23: Dr. Art Kramer, Beckman Institute, Department of Psychology, University of Illinois
  Healthy Body, Healthy Mind? The Relationship among Fitness, Cognition, Brain Structure and Function

- March 2: Dr. Steven Schiff, Krasnow Institute, GMU
  Real Time Interaction with EEG Phase: The Rhythm Method of Brain Stimulation

- March 9: Dr. Steven Gotts, National Institutes of Health
  Neural mechanisms underlying positive and negative repetition priming

- March 23: Dr. David Huber, University of Maryland
  Source confusion and discounting in perceptual identification

- March 30: Reshma Kumar, GMU
  Effects of age on the distribution of visuospatial attention across cue boundaries

- April 6:
  Jason Wong, GMU
  Oculomotor and attention capture by identity discontinuities

  Kathleen McGarry, GMU
  Evaluation of pilot and runway characteristics associated with runway incursions

- April 13: Miroslava Vomela, GMU
  Does spatial density affect implicit learning?

- April 20: Dr. F. Jacob Seagull, University of Maryland
  WHEN LESS IS MORE: Can auditory displays imporove patient care?

- April 27:
  Peter Squire, GMU
  Effects of Flexible and Restricted Control Interfaces on Human-Robot Performance

  Gregory Anderson, GMU
  1/f noise in speech

- May 4: Melanie Diez, GMU
  Exploring Task Resumption after Interruption

Arch Lab Students

In an effort to keep the growing Arch Lab student body a well-acquainted one, we have compiled some short bios from new students and continuing students.

New Students

Michel Brudzinski grew up in Columbia, MD and graduated from Dartmouth College. Since college he has been working as a Java programmer. One of Michel's research interests is homuncular cognitive control. He is a soccer fanatic.

David M. Cades received a BS in Human Factors Psychology from Tufts University in 2003. While at Tufts, he did some work in medical robotics and wayfinding. Prior to coming to GMU, he worked at Lighthouse International in New York City. David enjoys working in a hands-on environment with macro problems. At GMU, he hopes to work with Debbie Boehm-Davis on airline training work and interruptions research.

Yi-Fang Diane Tsai graduated from the University of California, San Diego (UCSD) in 2004 and worked at the Naval Health Research Center at the Point Loma Navy Base in San Diego. Some of her previous work includes monitoring eye movement behavior during high cognitive workload (during a driving and an auditory task), a paper on visual search and eye behavior, and an experiment on EEG and spatial disorientation, and EEG and motion sickness. Yi-Fang is interested in eye movement behavior, transportation research, EEG, and fMRI, and she will be working with Matthew Peterson here at GMU.

Ewart de Visser recently graduated from the University of North Carolina at Wilmington with a BA in film studies and a minor in psychology. Born in the Netherlands, he moved to America three years ago. Ewart is interested in cognition in film. In the past year, he worked with two professors in the fields of psychology and film studies to understand the modeling of space construction in movie viewing. The three experimented with a movie that can be easily edited and re-edited to manipulate space without interfering with the storyline. His honors thesis in film studies focused on the effectiveness of movie previews in terms of curiosity, arousal, and memory. Ewart is thrilled to be part of the George Mason community and easer to start applying cognition where needed.

Continuing Students

Bonnie Battaglia transferred into the HFAC masters program from Catholic University on a part-time basis. She works at NASA HQ in the Exploration Systems Mission Directorate as a technical writer/editor for Human Health & Performance issues under life sciences. As she advances her education and earns a degree from GMU, she'd like to work more closely with the research offices in psychology and human factors at NASA. She and her husband have a five-year-old boy, Austin, who attended kindergarten this year. When not at work or school, there's no place Bonnie would rather be than with her two boys enjoying the outdoors; they like to canoe, camp, hike, and live life to the fullest!

Brandon Beltz, from Salt Lake City, UT, earned a B.S. in Philosophy from the University of Utah in 2000. He currently works with Chris Kello examining periodic timing patterns that occur in human motor performance. When outside of the lab, Brandon enjoys exploring the multitude of nature trails around the Northern VA/ D.C. area.

Daniel Caggiano is a student of Raja Parasuraman and a PhD candidate in Applied Experimental Psychology at Catholic University. Generally speaking, he is interested in the cognitive neuroscience of attention and working memory and in how neural measures of these processes help us to understand healthy cognitive aging. More specifically, Dan's dissertation work focuses on how changes in the size of the attentional focus alter visual search performance. He has used a variety of methods in his research, including event-related potentials, functional MRI, and eye-movement measures.

Kathleen McGarry is a fifth-year PhD student who made the move to GMU with Raja Parasuraman and the other students from Catholic University. Her research interests include human-automation systems, human performance and aviation safety. She is currently working on

research examining how audio alerts in the general aviation cockpit can reduce the incidence of runway incursions. Katie has a NASA GSRP Grant for "[the] Use of Automated Alerts, Alarms and Displays During Airport Surface Movements."

Farilee Mintz is originally from the San Francisco Bay Area, but traded California sunshine for mid-west winters at the University of Michigan where she received a B.A. in Psychology. She moved to D.C. after graduation and has been working at the Naval Research Laboratory as a research assistant to Dr. Greg Trafton. Her research interests include perspective-taking, human-robot interaction, meteorological/scientific visualization, graph comprehension, and interruptions. In her spare time, Farilee enjoys going to the gym, playing volleyball, cooking, reading, and board games.

Anthony Novak came back to school in spring 2003 after several years playing drums with different bands, spending a few years as a flight attendant with US Airways, and working various jobs to make ends meet. He moved to Virginia in 1999 to fly out of DCA and for his then fiancé Erica's job. They now live in Fairfax very near GMU. He received a BS from Mason in the summer of 2004. Anthony's human factors interests are primarily in video game testing, possibly design, but he is also still considering usability engineering avenues.

Ricardo Prada hails from the San Francisco bay area and received his bachelor's degree from SF State. His research involves the design and evaluation of cognitively complex human-computer systems, including those found in commercial airliner cockpits. For fun, lately, Ricardo reads research papers.

Raj Ratwani is a fourth year doctoral student working with Greg Trafton. His research interests focus on interruptions, prospective memory, and scientific visualizations. This past summer he went to Italy for the Annual Cognitive Science Conference, and then spent an extra three weeks traveling around Scandinavia and Eastern Europe as part of his post-comps celebration.

Pam Reicher has a B.S. degree in Psychology from James Madison University, as well as a certificate in Information Technology from the University of Virginia. She has spent the last few years working as Web Designer, and is specifically interested in usability, site architecture and accessibility issues. She also volunteers her time to a non-profit organization as a newsletter designer and on-line forum moderator. When not using the computer you'll usually find her with her dog, reading or lying on the beach.

Photo below from left: Ericka Rovira, Brandon Beltz, Marla Zinni, and Peter Squire at the Culpeper Sprinter Triathlon, where they each completed a 750 meter swim, 18 mile bike, and 5k run.

Ericka Rovira is a PhD candidate enrolled in the Applied Experimental Psychology Program at The Catholic University of America. While at Catholic University, she completed her master's thesis investigating types and levels of automation reliability in a simulated combat environment. She received her B.S. in Engineering Psychology and Biomedical Engineering from Tufts University in 2000. She is an ARCH lab affiliate at George Mason University investigating futuristic concepts in air traffic control with her advisor Dr. Raja Parasuraman. She has also secured her own funding from NASA Langley through the Graduate Student Research Program for

the last four years. Currently, she is collecting her dissertation data investigating air traffic controllers' attention allocation in a mixed equipage environment with various forms of automation support. She maintains a part time position with L-3 Communications, where she performs consulting work for the Federal Aviation Administration in the area of air traffic control and human factors. In her spare time she enjoys traveling, learning about wine, and she has also recently completed her first sprint triathlon.

Originally from the Northern Virginia area, ***Daragh Sibley*** attended Virginia Tech for his undergraduate education. He returned to attend graduate school at George Mason, and is currently exploring computational models of lexical phenomena. In his spare time, Daragh enjoys adventure sports, including rock climbing and paintball, and traveling.

Carl "Mac" Smith is a fourth year doctoral student whose main research interests fall into the human factors domain. He is currently exploring the use of an alternative aviation display in novice knowledge and skill acquisition, as well as skill maintenance in experienced pilots. Carl also has interests in analysis approaches for interface design. In his spare time, Carl enjoys competitive sports and music.

Peter Squire received his Bachelor of Science Degree in Computer Science from Mary Washington College. He is a scientist for the B 40 Human System Integration branch at the Naval Surface Warfare Center Dahlgren Division (NSWCDD) and is pursing a Ph.D. in Human Factors and Applied Cognition at George Mason University. Peter's current research interests include human-robotic interaction and attention.

Miroslava Vomela received a BA in psychology from Skidmore College in Saratoga Springs, NY in 2003. She is now a third year doctoral student and works as a research assistant for Matthew Peterson. Her research interests include visual search, particularly in real-world displays. Miroslava spent this summer in DC at the Economic Research Service, part of the USDA, as an intern working on web usability.

Jason Wong has been at George Mason University since August 2004 working on core issues of visual cognition such as object recognition, theories of attention, and visual search. He also has interests in applications of cognitive science, including aspects of automated systems, driving, and human-computer interaction.

Marla Zinni is a PhD student enrolled in the Applied/Experimental Psychology program at the Catholic University of America. She received her B.S. in Psychology from Old Dominion University in 2001. She has been working here at George Mason University in the area of Neuroergonomics with her advisor Dr. Raja Parasuraman since summer 2004. While at Catholic University she conducted her masters' thesis research on the use of Transcranial Doppler Ultrasonography (TCD) as a tool to measure blood flow velocity in response to increased operator workload. She has also conducted studies examining automation type and reliability, workload in a battlefield scenario, and in the physiological measurement of mental workload. She is currently working on an experiment with Dr. Shimin Fu examining the effects of perceptual load on selection in a voluntary attention task. She has also secured her own funding from NASA Langley through the Graduate Student Researchers Program. In her spare time she is learning to play the violin and she also just completed her first sprint triathlon.

2005 Graduates

Masters Degree Recipients

- Darryn Bryant
- Aaron Miller
- Ricardo Prada
- Mohammad Rahman
- Tim Sherwood
- Cara Stitzlein
- Miroslava Vomela

In the photo above, lab members at the graduation reception in May. From left to right: Miroslava Vomela, Ricardo Prada, Sarah Henrickson, Cara Stitzlein, Lee Iovino, Chris Monk, Tim Sherwood.

Alumni news

Upon graduation, *Mohammad Rahman* started work as a Human Factors Engineer at Serco, Inc. in Vienna. Serco is a working service company for the NAVSEA Human Systems Integration Directorate (SEA 03). They help implement Human Factors design in Navy products, specifically for NAVSEA submarines, ships, etc. Mohammad is in good company at Serco, where the whole Human Factors team is from GMU. Aside from Mohammad, the team includes Mary Ann Mills, Ken Robinson, Tom Reynolds, Tyson Stokes, and Jeff Young.

Note from the Alumni Coordinator

Dear GMU Human Factors Alumni,

You may not be aware of it but there are many exciting changes going on in the Human Factors Department at George Mason University. With all of the growth in the department and other exciting developments, we are beginning an effort to create an alumni network. This will allow us to keep in touch with one another as well as the department and some of the latest developments in the field. Please send me the following information: mathew.mason@gmail.com

Name:
Year of Graduation:
Highest Degree:
Current Title:
Company/School:
Preferred Mailing Address:
Preferred Phone Number (H/W):
Email:
Website:

Thank you for staying connected with the department. We are still tracking down contact information for several department graduates and would appreciate your assistance in this effort. Pass this information on to any fellow alumni that you are in touch with.

Mathew Mason, MA
Alumni Coordinator
Class of 04