Christopher S. Furmanski

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Overview

Education: Ph.D. Cognitive Psychology, UCLA, 2001
Current Employment: Research Scientist HRL Laboratories, Malibu, CA
Relevant Experience: Corporate IRAD (Boeing, Raytheon, General Motors, HRL) & DARPA CRAD
Expertise: Empirical research, experimental design, usability testing, and interface development
Requirements: Full-time job ; contract/consulting work negotiable

Education

Ph.D., Cognitive Psychology   UCLA, Los Angeles, CA   *1995-2001*

  Thesis: Studied neural and behavioral effects of how people improve on visual tasks with practice.
  Title: Characterization of orientation sensitivity in the human visual system.

M.A., Psychology   UCLA   *1995-1996*

  Thesis: Studied training-induced improvements when people view rapidly presented images on
  computer displays.
  Title: Perceptual learning during object recognition.

B.S., Psychobiology   UCLA   *1990-1994*

Skill Set

Core Competencies

  •Experimental design and empirical testing
  •Technical, science, and lay-English writing
  •Data analysis & statistics
  •Rapid visualization and low-fidelity play testing
  •Small team (2-8 people) management

Computer Mastery

  •MATLAB, language for technical computing
  •Multi-platform proficiency: UNIX, Windows NT, Mac 9/X, Linux
  •Adobe Suite (Photoshop, Illustrator, Acrobat)
  •Macromedia Web Studio (Dreamweaver, Fireworks, Freehand)
  •3DStudio Max
  •Microsoft Office

Work Experience

Research Staff Scientist   HRL Laboratories (formerly Hughes Research), Malibu, CA   *2000-present*

  •Researcher in Human-Centered Systems department of HRL's Information-Science Lab.
  • Principal Investigator (PI) for DARPA Integrated Cognition Program Seedling. Leading
  interdisciplinary team of engineers and academic researchers in development of cognitive agent
  architectures. Also consulted with DARPA PM for development of INCOG Program.

  •PI & managing HRL IRAD team (6 people) developing and testing novel tools and approaches for
  improving interaction and enhancing situational awareness in vehicle control systems.

  •Performing internal R&D (IRAD) for Boeing focused on utilizing human cognition to improve time-
  critical decision making in military scenarios/applications. Developed research plan and reported on
  appropriate technologies and methodologies.
  •PI for development and testing of novel human-computer interfaces for multi-dimensional air-traffic
  controller displays for Raytheon IRAD.

  •Invited consultant for U.S. Navy's Chief of Naval Operations' Strategic Studies Group, Concept
  Generation Team for Future Warrior Systems. Drafted a report and attended a brain-storming conference
  about advanced human-computer interfaces and human-operator system development.
  •Invited speaker for DARPA IPTO's Next-Generation Unifying Agent Architectures SBIR kickoff.

  •Led human factors/usability evaluation for DARPA funded Human-Computer Symbiotes Consortium
  for Intelligent Collaboration and Visualization (IC&V) program. Designed, performed, and reported
  usability evaluation for proprietary web-tracking software, including iterative system development.
  •Generated and published new line of experimental research on empirical testing of view management for
  next-generation Augmented Reality interfaces (ISMAR2002, Germany ; ISMAR2003, Japan).
  •Acquired >$400,000 external research funds for FY2002&2003 from corporate owners: Raytheon,
  General Motors, & Boeing.

Work Experience (continued)

Graduate & Postdoctoral Fellow   UCLA – *http://rocky.psych.ucl.a.edu/furmanski*   *1995-2002*
- Acquired mastery of experimental design and perceptual-testing methods.
- Managed a research laboratory of 6 graduate students, programmers, and analysts.
- Taught lecture and lab courses on experimental design, and lecture sections on Cog. Psych.
- Was awarded multiple university-wide fellowships based on research and academic success.
- Used Fourier-based techniques for analyzing and displaying multi-gigabyte data sets.
- Acted as system administrator for UNIX-based DEC and Windows-NT workstations.
- Published 6 peer-reviewed articles, presented 6 invited-talks and 12 conference presentations.

Website Designer   UCLA Brain Mapping Division – *http://www.brainmapping.org*   *1996*
- Created an Internet and intra-net website for a medical-imaging research group.
- Received a *Times Pick Award* from the Los Angeles Times for website excellence.

Research Assistant   Stanford University, Palo Alto, CA   *1995*
- Designed a high-level computer language for performing neuroscience experiments.
- Generated analytical procedures for improving computer image quality.
- Performed experiments to look for brain areas responsible for processing object identification.

Computer Programmer   Harvard University, Cambridge, MA   *1994-1995*
- Developed algorithms for isolating faces in real-world images.
- Published a peer-reviewed article on the behavioral and neural mechanisms responsible for reading briefly presented text.

Selected Honors & Awards

Academic Awards
- UCLA Dissertation Award, Graduate-Division, UCLA (Department rank: 1)   *2000-2001*
- Office of the President Research-Mentor Fellowship, Graduate Division, UCLA   *1998-1999*
- University Fellowship, College of Letters and Science, UCLA   *1995-1996*

Professional Awards
- Received internal HRL award for paper publication   *2002*
- Received a *Times Pick Award* from the Los Angeles Times for website excellence   *1996*

Selected Publications (*from over 20 journal and conference publications*)

Professional Papers
- Azuma, R, and **Furmanski, C**, (2003). Evaluating Label Placement for Augmented Reality View Management. *International Symposium on Mixed and Augmented Reality 2003*.
- **Furmanski, C**, Azuma, R, and Daily, M (2002). Augmented-reality visualizations guided by cognition: Perceptual heuristics for combining visible and invisible information. *Proceedings of the International Symposium on Mixed and Augmented Reality*. IEEE Computer Society Press, pp. 215-224.

Academic Papers
- Engel, SA and **Furmanski, CS** (2001). Selective adaptation to color contrast in human primary visual cortex. *Journal of Neuroscience,* 21(11), p. 3949-3954.
- **Furmanski, CS** and Engel, SA (2000). Perceptual learning in object recognition: Object specificity and size invariance. *Vision Research*. 40(5), p. 473-484.
- **Furmanski, CS** and Engel, SA (2000). An oblique effect in human primary visual cortex. *Nature Neuroscience*. 3(6), p. 535-536.

Invited Industry Advisor

DARPA IPTO   Orlando, Florida   *June, 2003*
- Next-Generation, Unifying Agent Architecture SBIR

United States Navy   Newport, Rhode Island   *May, 2003*
- Chief of Naval Operations, Strategic Studies Group, Concept Generation Team

Journal Referee

- •!Journal of Cognitive Neuroscience
- • Vision Research
- • Network: Computation in Neural Systems
- • IEEE and ACM International Symposium on Mixed and Augmented Reality

Extra-curricular Leadership

Graduate Science Journal Founder, Editor   UCLA   *1999-2001*
- •Co-created, edited, and contributed to a publication describing the scientific achievements of UCLA graduate students in non-technical language.

Ultimate Frisbee Team Founder, Captain   UCLA   *1996-1998*
- •Organized and led a new university sports team (30 men) to collegiate regional playoffs.
- •Attained corporate sponsorship (from PowerBar, Gatorade) for team uniforms and travel expenses.

References

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Other academic references, Curriculum Vitae, or copies of publications available upon request or at:
http://www.furmanski.net