

Elyon A.M. DeKoven, Ph.D.

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Professional Summary

Over fifteen years of experience with progressively increasing level of responsibility, including:

- **Project management** for both large and small research and development teams, as well as experience in team building and meeting facilitation
- **Scientific exploration**, including literature review, experiment design and execution, statistical analysis, publication of scientific and technical articles (including a doctoral dissertation), and lecturing in industry, universities, and international conferences
- **Usability analysis** and **user interaction design** for consumer, business and military applications, including requirements analysis, participatory design, wireframe development, and usability studies
- **Software engineering**, including architecting, programming and managing Java projects, extensive and creative use of HTML, Visual Basic, VBA and the Microsoft Office suite, and experience with speech recognition and dialogue management
- **Math education** background, including teaching at elementary, middle school and university levels, research in math education resulting in conference speeches and journal publications, and leader of extra-curricular after-school programs and community math awareness events

Education and certifications

- PhD Industrial Design Engineering, Delft Univ. of Tech., Delft, The Netherlands, 2004
Design of intelligent household appliances, using artificial intelligence, computational linguistics and participatory design methods
- MA Mathematics, University of California, Davis, CA, 1994
Pure mathematics, with additional coursework in math education and creative writing
- BA Mathematics, University of California, Santa Cruz, CA, 1990
Pure mathematics, with additional coursework in computer science, acting and music
- Technography certification, Institute for Better Meetings, Palo Alto, CA, 1990
Meeting facilitation skills

Transferable Skills

- Expert with MS Office, particularly Excel, Word, PowerPoint and Visio (10+ years)
- Expert with Visual Basic and VBA (10+ years)
- Technical writing, literature review and presentation development (10+ years)
- Usability analysis and user interface design, including task analysis, wireframe development and empirical study (5+ years)
- Public speaker and educator (5+ years)
- Project management and meeting facilitation (5+ years)
- Statistical analysis using Excel and SPSS (4+ years)
- HTML, CSS and JavaScript (3+ years)
- Java, SQL and database management (<2 years)

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Recent Employment

Web Usability Analyst, Campell-Ewald Advertising, Feb. 2007 – May 2007

Analysis of commercial web sites for usability, web standards compliance, and industry best practices. Delivered “better than expected” analysis and report, significantly ahead of schedule. Work involved use of best of breed web-based analysis tools and HTML, and report included wireframes and a site map.

Research Scientist, Soar Technology, Inc., Mar. 2005 – Nov. 2006

Principle investigator on multi-year military research and development project, leading to a multi-agent architecture and test bed for training and concept of operation development delivered to the US Army, as well as numerous talks and publications and renewed research funding. Primary responsibilities included setting research vision, project management, article publication and architecture design. As the senior HCI scientist and interaction design specialist, my role also included task analysis, wireframe development and usability analysis. Work involved use of HTML, XML, VB, Java, Visio, MS Project and PowerPoint, as well as a number of other techniques and technologies such as GOMS, HTN planners, Bayesian reasoning, and dialogue management. Additional duties at Soar Technology included ongoing business development, proposal writing, and publication of scientific articles.

Web developer, DeepFUN.com, Sept. 2004 – Feb. 2005, Dec. 2006 – Feb. 2007

Responsible for the upgrade and integration of diverse websites for purpose of consistent design and revenue generation. Work involved search engine optimization (SEO), wireframe specification, HTML, Javascript and CSS coding. Tools used include Dreamweaver MX, Visual Studio.NET and Blogger. Duties included some content creation, analysis of site traffic statistics, site marketing and competitive analysis.

Researcher, Delft University of Technology, The Netherlands, Sept. 1999 – June 2004

Conducted five-year design investigation for programmable consumer appliances, such as home thermostats and VCRs. Project results included acquisition of tens of thousands of dollars in research funds, a new usability metric, a dialogue prototyping platform along with new design methods and tools, and design guidelines for multimodal interface design. Results also included an international patent and numerous publications, culminating in a doctoral dissertation.

Managed two full-time programmers and numerous design interns, and was responsible for meeting project timelines and budgetary constraints, acquiring new funding streams and industry partners, and making technology purchase and adoption decisions.

Design work included user requirements gathering, task modeling, wireframe specification, usability testing and design iteration. Software development of interactive prototypes followed OOD and OOP practices, and included use of Java, Visual Basic, MS Office and VBA, as well as speech recognition and speech generation.

Member of Technical Staff, Hewlett Packard Research Labs, March 1993 – May 1999

Research, design and prototyping of new visual programming languages to enable non-programmers to quickly create data driven interfaces. Application domains included home automation, desktop application development, and telecom management. Responsible for conducting market analyses and technology reviews, interface design and wireframe specification, implementing interactive prototypes, and demonstrating results to industry partners and senior management. Design work done iteratively, and in consultation with target users. Development work involved rapid prototyping in Visual Basic, MS Office and VBA, as well as some use of SQL and HTML. Technology developed in the project became the basis for the business-to-business e-commerce services offered by Exemplary Software – a spin-off from Hewlett Packard Labs.

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Journal Articles

- Dugdale, S., DeKoven, E., & Ju, Mi-Kyung. (1998). Computer course enrollment, home computer access, and gender: Relationships to high school students success with computer spreadsheet use for problem solving in pre-algebra, *Journal of Educational Computing Research*, 18(1), pp. 49-62, Farmingdale, N.Y.: Baywood Pub. Co.
- Yang, S., Burnett, M., DeKoven, E., & Zloof, M. (1997). "Representation design benchmarks: A design-time aid for VPL navigable static representations," *J. Visual Languages and Computing* 8(5/6), Oct./Dec.

Conference Publications

- DeKoven, E. and Murphy, A.K.G. (2006). "A Framework for Supporting Teamwork between Humans and Autonomous Systems," *Command and Control Research and Technology Symposium (CCRTS06)*, San Diego, CA, June 20-22, 2006.
- DeKoven, E., Bechtel, B., Zaiantz, J., Lisse, S., & Murphy, A.K.G. (2006). "Delegating Responsibilities in Human-Robot Teams," *Unmanned Systems Technology VIII: Proceedings of the SPIE Defense and Security Symposium*, Vol. 6230, Grant R. Gerhart, Charles M. Shoemaker, Douglas W. Gage (Eds.); Orlando, FL: SPIE Press.
- Lisse, S.A., Beard, J.T., Huber, M.H., Morgan, G., & DeKoven, E.A.M. (2006). "A Deontic Implementation of Adjustable Autonomy for Command and Control of Robotic Assets," *Unmanned Systems Technology VIII: Proceedings of the SPIE Defense and Security Symposium*, Vol. 6230, Grant R. Gerhart, Charles M. Shoemaker, Douglas W. Gage (Eds.); Orlando, FL: SPIE Press.
- Zaiantz, J., DeKoven, E., Piegdon, N., Wood, S. & Huber, M. (2006). "Using GOMS and Bayesian plan recognition to develop recognition models of operator behavior," *Enabling Technologies for Simulation Science X: Proceedings of the SPIE Defense and Security Symposium*, Vol. 6227, Dawn A Trevisani (Ed.); Orlando, FL: SPIE Press.
- DeKoven, E. & Wood, S.D. (2005) "Integrating adjustable autonomy in an intelligent control framework," *Unmanned/Unattended Sensors and Sensor Networks II: Proceedings of the SPIE Defense and Security Symposium*, Vol. 5986, Edward M. Carapezza (Ed.); Orlando, FL: SPIE Press.
- Knudsen, K., Zaiantz, J. & DeKoven, E. (2005). "Survey of modeling, recognition and adaptation strategies for user adaptive systems". *Proceedings of HCI International 2005*, Las Vegas, NV.
- DeKoven, E. (2004). "Help Me Help You: Designing Support for Person-Product Collaboration", Ph.D. Thesis, Delft Univ. of Tech., Delft, The Netherlands.
- DeKoven, E., Vermeeren, A.P.O.S., & Zeng, X. (2004). "Designing collaborative programmable appliance interfaces: a SenSay case study", *IEEE International Conference on Systems, Man and Cybernetics*, The Hague, The Netherlands.
- DeKoven, E., de Hoogh, M.P.A.J., & Keyson, D.V. (2003) "Rapid prototyping collaborative dialogue interfaces" *IFIP TC12 International Conference on Human-Computer Interaction (Interact'03)*, September 1-5, Zurich, Switzerland, IOS Press.
- DeKoven, E. & Keyson, D.V. (2002). "Evaluating task models embedded in consumer products," *Proceedings of the 1st International Workshop on Task Models and Diagrams for User Interface Design (TAMODIA)*, July 18-19, 2002, Bucharest, Romania, INFOREC Printing House.
- DeKoven, E. & Keyson, D.V. (2002). Measuring task models in designing intelligent products. *Proceedings of the International Conference on Intelligent User Interfaces*, San Francisco, p. 188. ACM Press.

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- DeKoven, E. & Keyson, D.V. (2002). An Empirical Comparison of Task Modeling Techniques for the Design and Development of Intelligent Products, Appearing in: *First International Conference on Usage-Centered Design* (forUse), Portsmouth, New Hampshire, 25-28 August.
- DeKoven, E., Keyson, D. V., & Freudenthal, A. (2001). Designing Collaboration in Consumer Products (Series 2) In: *Proceedings of the ACM Conference on Computer Human Interaction* (CHI'01) (pp 195-196), 31 March-5 April 2001, Seattle, Washington.
- Freudenthal, A., Keyson, D.V., DeKoven, E., & de Hoogh, M.P.A.J. (2001). Communicating extensive smart home functionality to users of all ages: the design of a mixed-initiative multimodal thermostat-interface In: *OIKOS 2001 Workshop: Methodological Issues in the Design of Household Technologies*, Molslaboratoriet, Denmark, March 12-13, 2001, 34-39.
- DeKoven, E., & Keyson, D.V. (2000). Designing Collaboration in Consumer Products (Series 1), Socially Intelligent Agents: The Human in the Loop. In: *Proceedings of the AAAI Fall Symposium*, 3-5 November 2000, Sea Crest Resort, North Falmouth, MA, USA. Technical Report FS-00-04, AAAI Press.
- Yang, S., DeKoven, E., and Zloof, M. (1996) Design benchmarks for VPL static representations. In *Proceedings of the 1996 IEEE Symposium on Visual Languages* (September 03 - 06, 1996). VL. IEEE Computer Society, Washington, DC, 263.

Other Significant Presentations and Publications

- DeKoven, E. (2006). "Participatory Scenario Design and Simulation on the ICF Testbed," 26th Soar Workshop, Ann Arbor, MI, May 24-26.
- DeKoven, E., & Murphy, A.K.G. (2006) "Adaptive Human-Robot Interface", 6th Annual Intelligent Vehicle Systems Symposium and Exhibition (IVSS'06). June 13-16, Traverse City, MI.
- DeKoven, E. (2005). "Off-Topic Recommendations", Beyond Personalization Workshop at International Conference on Intelligent User Interfaces (IUI'05), San Diego, CA, Jan 9-12.

Patents

- Keyson, D.V., Freudenthal, A., de Hoogh, M.P.A.J. & DeKoven, E.A.M., TUDelft patent, Interface unit, March 30th, 2000, Dutch 1014792, International PCT/NL01/00257.

Honors, Awards and Distinctions

- Phi Beta Kappa Honor Society, 1990
- Cowell College Honors, 1990
- Honors in Mathematics, 1990
- National Dean's List, 1987, 1988, 1989
- Speaker at math education conferences, 1990, 1991
- Director, Math Awareness Week activities, Santa Cruz County, 1993, 1994
- Director, Creative Math Day, Santa Cruz, 1994