

Resume
William Anthony Stubblefield, Ph. D.
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EDUCATION

Completed Lean/Six Sigma Black Belt Training and Certification. 2010.

Intensive training at Stanford Business School on *Managing Teams for Innovation and Success*. 2005.

Ph.D. Computer Science, University of New Mexico, 1995.
Dissertation topic: *Source Retrieval in Analogical Reasoning: An Interactionist Approach*.

M.S. Computer Science, University of New Mexico, 1984.

B.A. English Literature, Stanford University, 1970.

WORK EXPERIENCE

Principal Member of Technical Staff

Sandia National Laboratories
P. O. Box 5800
Albuquerque, New Mexico 87185
September 1995 - present

Highlights of my work at Sandia Laboratories

- Developed Risk Management processes for Neutron Generator Manufacturing group. Worked on theory of risk management Exploratory Simulation Technologies Department.
- Led knowledge management program for Neutron Generator Manufacturing group, designing and implementing a knowledge base containing three years worth of technical project results.
- Primary designer and architect for the LIGA Traveler system, which managed production data for an advanced micro-mechanical fabrication process developed at Sandia National Laboratories/CA.
- Designer, Knowledge Engineer, and primary implementer of the Glass-to-Metal Seals (GMS), and Capacitors knowledge preservation system.
- Designed, organized and conducted a workshop entitled *Conversations With the Past: Technology, Community and Interpretation in Long-Term Knowledge Management* for the Computer Supported Cooperative Work Conference, CSCW, (2004).

- Designed and implemented the Near Net-Shape design advisor, an expert system for selecting between machining, various casting methods and Laser Engineered Net Shaping (LENS).
- Developed the use of ethnographic field methods for purposes of software and process design. Applied these to all the systems described above, and also used them on formal assessments of the Primary Hazard Screening System (PHS), the Neutron Generator Product Test System (PTS), and the National Infrastructure Simulation and Analysis Center (NISAC) for 6320.
- Developed the Activities and Practices (AP) software engineering process. This is notable for integrating user-oriented design with software engineering practice, and for using a Wiki to track project work. AP has been used in multiple projects, and is unique in being shaped by social science theories of group work and scientific communities.
- Conceived, developed and taught a course in *Ethnography, Interaction Design, and Usability*, for Sandia's corporate training department.
- Ran process improvement events for groups in manufacturing, nuclear weapons, manufacturing, and infrastructure improvement using a variety of methods from the Lean/Six Sigma and Design/Innovation communities.

Visiting Professor

Department of Computer Science
Dartmouth College, Hanover, NH
September, 1993 - March 1995

Taught courses in Software Engineering, Object Oriented Methods, Computer Networks, and Databases. Conducted research in Artificial Intelligence and Human-Computer Interaction.

Senior Course Instructor

Learning Tree International, Reston, Va.
1984 - September 1995.

Taught and consulted on Object Oriented Analysis & Design, Artificial Intelligence, Expert Systems, and User Interface Design

Clients have included AT & T, Ericsson Telecommunications, Bell Communications Research, NASA, Prodigy Services, Iomega Corp., the US Department of Defense, and Lockheed.

PROFESSIONAL ORGANIZATIONS

ACM - President of UNM Student chapter, 1984; Currently member of SIG-CHI, the Special Interest Group in Computer-Human Interaction.

WORKSHOPS

Organized and conducted the workshop, *Conversations with the Past: Technology, Community and Interpretation in Long-term Knowledge Management* for the Computer Supported Cooperative Work Conference, 2004. New Orleans, LA.

PUBLICATIONS

Most of these papers are available at <http://www.wmstubblefield.com>

Books:

AI Algorithms, Data Structures, and Idioms in PROLOG, LISP and Java. with George F. Luger. Addison Wesley. 2008.

Artificial Intelligence: Structures and Strategies for Complex Problem Solving. Editions 1 (1989), 2 (1993) and 3 (1998). George Luger & William Stubblefield. Addison Wesley. (Note. I did not participate in the 4th and subsequent editions because I wanted to pursue my work in the theory and practice of software design, as well as writing fiction.)

Thesis:

Source Selection for Analogical Reasoning: An Interactionist Approach. Doctoral Dissertation. University of New Mexico. 1995.

Papers:

Situated Cognition as a Basis for a Design and Engineering Process. (with Tania L. Carson). Computer-Human Interaction Conference (CHI) 2007. San Jose, California. 2007.

Hacking Sense: Understanding Design and Use as Situated Sensemaking. Position Paper for the Exploring Design as a Research Activity (EDRA) workshop. Computer-Human Interaction Conference (CHI) 2007. San Jose, California. 2007.

Embodied Cognition and Evolutionary Psychology as Foundations of Design Research. Position paper for the Workshop on Exploring Design as a Research Activity, Designing Interactive Systems (DIS) 2006. Penn State University, PA. 2006.

The LIGA Traveler: Social and Technical Invariants in Interactive System Design. (with K. S. Rogers & D. S. Ingram) Proceedings DUX 2003: Designing User Experiences. San Francisco. 2003.

Preserving Multiple Expert Voices in Scientific Knowledge Management. (with A.H.Liszka & S.D. Kleban) Proceedings DUX 2003: Designing User Experiences. San Francisco. 2003.

A Collaborative Knowledge Management System for Concurrent Design and Manufacturing. (with A.H.Liszka & S.D. Kleban). Proceedings 10th Annual ISPE International Conference on Concurrent Engineering: Research and Applications. Madeira Island, Portugal. 2003. This paper won the award for Best Paper at the Conference.

Narrative and Meaning in Ordinary Interactive Software. Position paper for the Storytelling and Collaborative Activities Workshop. CSCW 2003: Computer Supported Cooperative Work. New Orleans. 2003.

Collaborative Evaluation of Early Design decisions and Product Manufacturability. Hawaii International Conference on System Sciences, 2000.

The Social Life of Engineering Authorizations. Proceedings Design of Interactive Systems - 2000 (DIS-2000). 2000.

Research directions in designing intercultural interactions in collaborative virtual communities, with Elaine M. Raybourn, Andrew McGrath, Alan Munro, ACM SIGGROUP Bulletin, Volume 21 Issue 1, 2000.

Narrative Structure and the Design of Collaborative Virtual Environments, Invited Talk, Group - 99, Phoenix, 1999.

Patterns of Change in Design Metaphor: A Case Study. Proceedings CHI 98: Human Factors in Computing Systems. 1998.

Emotions as Weak Biases in Metaphor Formation. AAAI Fall Symposium: Cognition and Emotion. 1998.

Source Selection for Analogical Reasoning: An Empirical Approach. (with George Luger). Proceedings: Thirteenth National Conference on Artificial Intelligence. 1996.

Improving Source Selection in Analogical Reasoning. AAAI Fall Symposium on Relevance. 1994.

Metaphor and the Semantics of Embedded Action. Computers and Philosophy Conference. 1994.

“Artificial Intelligence” (with George Luger) an entry for the *The MacMillan Encyclopedia of Computer Science.* Ed. Gary G. Bitter, MacMillan Pub. 1992.

PROLOG and Programming with Logic (with George Luger) in *AI Review,* American Association for Artificial Intelligence. 1989.

Paradigm Dependent Human Factors Issues in Expert System Design (with George Luger) in *Proceedings of the Expert Systems in Telecommunications Symposium.* March 9, 1987. New York, NY.