

Lester D. Nelson

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Experience

Research Scientist, Palo Alto Research Center (PARC), Palo Alto, CA, 2004 – Present

- Augmented social cognition research on projects relating to the adaptation and adoption of social technologies to improve sensemaking and collaboration. Responsibilities include leading and evaluation of social annotation system (<http://SparTag.us>), developing new technologies for collaboration (selective sharing of content using active keyword tags), conducting fieldwork, intellectual property development and exploratory prototyping for informal information sharing in organizations. Research also focused on end-user innovations and platform/system integration in response to changing requirements (Web 2.0 mashups, adaptable application/service design), usable access control, resulting in prototypes, intellectual property, presentations, and publications.
- Technology Strategy Lead for External Customer Research Project. The goal was to assist a client company with improving their system engineering practices. Responsibilities included management consulting (including expertise in software development practices, tools, and methodologies) and customer-oriented research (including fieldwork and design intervention with customer organizations in the area of communication and collaboration for distributed software development teams).

Senior Research Scientist, FX Palo Alto Laboratory, Palo Alto, CA, 1995 – 2004

- Innovation and evaluation of new mobile and ubiquitous computing technologies. This produced intellectual property, prototypes for evaluation and demonstration, technology transfer to product groups, and communication of research results, including international conferences talks (CHI, SIGGRAPH, UIST, CSCW). Responsibilities included participation in all phases of research, including project and technical leadership. Resulting commercial products included interactive public displays for information sharing both online and in physical places (cafés and offices), and physically embodied interfaces for manipulating digital media presentations. Prototypes and patents included improvements for public cell phone use and desktop support of conversations over digital content.

Reengineering Project Manager, Lockheed Research & Development Division, Palo Alto, CA, 1994 – 1995

- Managed and conducted projects in applying programming language transformation to refurbish legacy software applications.

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Experience Continued

Software Systems Consultant, Lockheed Australia, Melbourne, Australia, 1991-1993

- Established and provided training for software development practices and tools for a Lockheed/Telecom-Australia joint venture company building the Jindalee Over-The-Horizon Radar Network.

Data Systems Engineer, Lockheed Research & Development Division, Palo Alto, CA, 1988-1991

- Conducted research and development on practices and tools for software reuse and software engineering for large, mission critical systems, including technology transfer of computer aided software engineering and object oriented programming expertise to corporate divisions and large government project proposal teams.

Senior Associate Programmer, IBM Corporation, Owego, NY, 1983-1988

- Designed, implemented, and tested software for large mission critical defense systems.

Programmer, Mitchell Systems, Sudbury, MA, 1979

- Implemented and tested software and hardware configurations for critical path analysis logistical applications.

Computer Consultant, Trinity College, Hartford, CT, 1977-1979

Designed, implemented, and tested software and hardware configurations for psychology and physiology experiments.

Education

State University of New York, Binghamton, New York, 1985-1987

38 Graduate Credits, GPA 4.0

Area of Concentration: System Science/Modeling and Simulation.

University of Wisconsin, Madison, Wisconsin, 1982

M.S. in Computer Science

Area of Concentration: Mathematical Programming.

Trinity College, Hartford, Connecticut, 1979

B.S. in Mathematics and Computing Major Coordinated with Engineering

Inventions

17 US Patents Granted, 2001-present, 7519573, 7286649, 7272563, 7251316, 7249327, 7106852, 7089278, 7013279, 6941342, 6823184, 6773177, 6732915, 6580438, 6509909, 6320496, 6195093, 6175954; 13 others applied.

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Programming Project development in Ada, Applescript, Basic, C, C++, C#, Dynamo, Focal, Fortran, HTML/CGI, Java, Javascript, JSP, Jovial, Lisp, Modula, Pascal, Perl, PHP, Proto+, Python, Refine, SQL, TCL/Tk, Visual Basic, XML/XQUERY/XSLT, and low level languages (DEC PDP11 Assembler, Advance Radar Processor microcode, 1750A Assembler). Application programming in DEC VMS, RSX11, IBM VM/CMS, Palm OS, Windows 95/98/NT/XP, UNIX, Mac OSX 10.4, 10.5. Systems programming and administration experience in DEC-RT11, RSTS, Windows Server 2003.

Activities **Member**, Association of Computing Machinery (ACM)

Awards

- Palo Alto Research Center, Appreciation Award Going Above and Beyond, 2008
- Palo Alto Research Center, Outstanding Performance Delivering Results, 2006
- FX Palo Alto Laboratory Significant Achievement Awards, 1996, 1999, 2001, 2004
- Lockheed Corporation Pursuit of Excellence Award, 1994
- President's Fellow, Trinity College, 1979
- Bausch & Lomb Science Award, 1975.

Publications

- Churchill, E.F. and Nelson, L.D, Media Spaces to Placed Media: Ubiquitous Computing, Community Network and Public Space Publishing, in Media Space 20+ Years of Mediated Life, Chapter 5, Springer Series Computer Supported Cooperative Work, Harrison, Steve (Ed.), 2009.
- Convertino, G.; Hong, L.; Nelson, L.; Pirolli, P. L.; Chi, E. H. Activity awareness & social sensemaking 2.0: design of a task force workspace . HCI International 2009 - Thematic Area: Augmented Cognition, 2009
- Nelson, L.; Held, C.; Pirolli, P. L.; Hong, L.; Schiano, D. J.; Chi, E. H. With a little help from my friends: examining the impact of social annotations in sensemaking tasks. Proc. 27th Annual CHI Conference on Human Factors in Computing Systems (CHI 2009); 2009.
- Dalal, B.; Nelson, L.; Smetters, D. K.; Good, N.; Elliott, A. Ad hoc guessting: when exceptions are the rule. Usability, Psychology and Security (UPSEC 2008); 2008.

Publications *Continued*

- Hong, L.; Chi, E. H.; Budiu, R.; Pirolli, P. L.; Nelson, L. SparTag.us: a low cost tagging system for foraging of web content. Proceedings of 2008 International Working Conference on Advanced Visual Interfaces (AVI'08); 2008
- Nelson, L.; Smetters, D. K.; Churchill, E. F. Keyholes: selective sharing in close collaboration. CHI 2008 Extended Abstracts on Human Factors in Computing Systems. 2008 April 5-10; Florence, Italy. NY: ACM, pp. 2443-2452, 2008.
- Nelson, L.; Smetters, D. K.; Churchill, E. F. Looking through the keyhole: snippet sharing in close collaborations. Demo at 2008 ACM Conference on Computer Supported Cooperative Work (CSCW 2008); 2008 November 8-12; San Diego, CA. [abstract]
- Smetters, D. K.; Dalal, B.; Nelson, L.; Good, N.; Elliott, A. Ad-hoc guessting: when exceptions are the rule. ;login: the USENIX Magazine; 33 (4), 2008.
- Churchill, E.F., Nelson, L.D., Smetters, D.K., Useful Computer Security, IEEE Internet Computing, v. 12(3), pp. 10-12, May-June 2008
- Nelson, L.D., Smetters, D., and Churchill, E. F. (2008): Keyholes: selective sharing in close collaboration. In: Proceedings of ACM CHI 2008 Conference on Human Factors in Computing Systems, pp. 2443-2452, 2008.
- Nelson, L. D.; Churchill, E. F.; Mapmail: Restructuring an Email Client for Use in Distributed Teams, Work-in-Progress Report, CHI '07 Extended Abstracts of Conference on Human Factors in Computing Systems (CHI 2007); April 2007.
- Churchill, E. F.; Nelson, L. D., Interactive Community Bulletin Boards as Conversational Hubs and Sites for Playful Visual Repartee, Eighth Annual Workshop and Minitrack on Persistent Conversation, Hawai'i International Conference on Systems Science (HICSS), January 2007.
- Churchill, E. F.; Nelson, L. D., From Media Spaces to Emplaced Media: Digital Poster Boards and Community Connectedness, Workshop on Media Space, ACM Conference on Computer Supported Cooperative Work, 2006.
- Nelson, L. D.; Churchill, E. F. Mash Me Up, Mash Me Down: Restructuring Email for Content Sharing and Collaboration in Distributed Teams, Workshop on Mash-ups and CSCW, ACM Conference on Computer Supported Cooperative Work, 2006.
- Nelson, L. D.; Churchill, E. F., Repurposing: Techniques for reuse and integration of interactive systems, Proceedings of the 2006 IEEE International Conference on Information Reuse and Integration, pp. 490-495, 2006.

Publications *Continued*

- Churchill, E. F.; Nelson, L. D.; Hsieh, G. Café life in the digital age: augmenting information flow in a café-work-entertainment space, Experience Report, CHI '06 Extended Abstracts of Conference on Human Factors in Computing Systems (CHI 2006); 2006.
- Nelson, L., Churchill, E.F., User Experience of Physical-Digital Object Systems: Implications for Representation and Infrastructure, Workshop Paper, Workshop on Smart Objects, The Seventh International Conference on Ubiquitous Computing, UBICOMP 2005, Tokyo, Japan, September 2005.
- Churchill, E.F., Nelson, L., Sokoler, T., Tools that Tell Tales: Bridging Context Seams by Digitally Annotating Physical Artifacts Workshop Paper, Workshop on Smart Objects, The Seventh International Conference on Ubiquitous Computing, UBICOMP 2005, Tokyo, Japan, September 2005.
- Bobrow, D., Cheslow, B., Churchill, E., Nelson, L., Whalen, J., Conversation Support in a Collaboration Space for a Distributed Workgroup, Workshop Paper, Workshop on Beyond Threaded Conversation, CHI 2005, Portland, OR, April 2, 2005.
- Sharing Multimedia Content with Interactive Displays: A Case Study, Elizabeth Churchill, Les Nelson, Laurent Denoue, Jonathan Helfman, and Paul Murphy, ACM DIS 2004, Cambridge, August 1-4, 2004.
- Digital Graffiti: Public Annotation of Multimedia Content, Scott Carter, Elizabeth Churchill, Laurent Denoue, Jonathan Helfman, and Les Nelson, CHI 2004, Vienna, Austria, April 24-29, 2004.
- Goey Interfaces: An Approach for Rapidly Repurposing Digital Content, Les Nelson, Elizabeth Churchill, Laurent Denoue, Jonathan Helfman, and Paul Murphy, CHI 2004, Vienna, Austria, April 24-29, 2004.
- Blending Digital and Physical Spaces for Ubiquitous Community Participation, Elizabeth Churchill, Andreas Girgensohn, Les Nelson, and Alison Lee, Communications of the ACM, February 2004, Vol. 47, No. 2, pp. 38-44 (
- THE PLASMA POSTER NETWORK Social Hypermedia on Public Display, Elizabeth Churchill, Les Nelson, Laurent Denoue, Paul Murphy, and Jonathan Helfman, In Public and Situated Displays. Social and Interactional Aspects of Shared Display Technologies. K. O'Hara, M.Perry, E. Churchill and D. Russell (Eds) London: Kluwer Academic Publishers.
- A fast, interactive 3D paper-flier metaphor for digital bulletin boards, Laurent Denoue, Les Nelson, and Elizabeth Churchill, UIST 2003.

Publications Continued

- Palimpsests on Public View: Annotating Community Content with Personal Devices, Scott Carter, Elizabeth Churchill, Laurent Denoue, Jonathan Helfman, Paul Murphy, and Les Nelson, UBICOMP, Seattle, October 12-15th, 2003.
- Multimedia Fliers: Informal Information Sharing With Digital Community Bulletin Boards, Elizabeth Churchill, Les Nelson, and Laurent Denoue, Communities and Technologies, Amsterdam, The Netherlands, September 2003.
- The Plasma Poster Network: Posting Multimedia Content in Public Places, Elizabeth Churchill, Les Nelson, Laurent Denoue, and Andreas Girgensohn, Human-Computer Interaction INTERACT '03, IOS Press, pp. 599-606, 2003.
- Weaving Between Online and Offline Community Participation, Elizabeth Churchill, Andreas Girgensohn, Les Nelson, and Alison Lee, Human-Computer Interaction INTERACT '03, IOS Press, pp. 729-732, 2003.
- Implementing a paper flier metaphor using cloth simulation, Laurent Denoue, Les Nelson, and Elizabeth Churchill, Siggraph 2003
- AttrActive Windows: Dynamic Windows for Digital Bulletin Boards, Laurent Denoue, Les Nelson, and Elizabeth Churchill, CHI 2003.
- AttrActive Windows: Active Windows for Pervasive Computing Applications, Les Nelson, Laurent Denoue, and Elizabeth Churchill, ACM Intelligent User Interface (IUI) 2003, Miami Beach, FL, pp 326, 2003.
- Low-Resolution Supplementary Tactile Cues for Navigational Assistance, Tomas Sokoler, Les Nelson, and Elin Pedersen, In proceedings of Mobile HCI 2002. (Pisa, Italy,2002), Springer-Verlag, Lecture notes in computer science #2411,pp.369-372, 2002.
- Tangibly Simple, Architecturally Complex: Evaluating a Tangible Presentation Aid, Elizabeth Churchill and Les Nelson, CHI2002
- Quiet Calls: Talking Silently on Mobile Phones, Les Nelson, Sara Bly, and Tomas Sokoler, In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, pp. 174-181, ACM Press, March 31-April 5, 2001, Seattle, WA, 2001.
- Expanding a Tangible User Interface, Elin Pedersen, Tomas Sokoler, and Les Nelson, In proceedings of DIS'2000, ACM Press, August 2000.
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Publications *Continued*

- Anchored Conversations. Chatting in the Context of a Document, Elizabeth Churchill, Jonathan Trevor, Sara Bly, Les Nelson, and Davor Cubranic, In CHI 2000 Conference Proceedings, ACM Press, pp. 454-461, 2000.
- CardGear: A Presentation System Manipulated with Paper Cards, Satoshi Ichimura, Les Nelson, and Elin Pedersen, In Proc. of Interaction 2000 Symposium. Information Processing Society of Japan, pp. 17 - 24. (in Japanese), 2000.
- Palette: A Paper Interface for Giving Presentations, Les Nelson, Satoshi Ichimura, Elin Pedersen, and Lia Adams, In Proceeding of the CHI 99 Conference on Human Factors in Computing Systems, ACM Press, pp. 354-361, 1999.
- Converting Information Management Systems to Relational Databases, Wolf Polak, Les Nelson, Timothy Bickmore, Proceedings of the Software Technology Conference '95, April 1995.
- Reuse Support for Ada Through Analysis of the Semantic Interface, Stephen W. Sherman, Les Nelson, et. al., First International Symposium on Environments and Tools for Ada, ACM, May 1990.

Patents *Granted*

Intellectual Property was developed in support of the strategic business directions of the FX Palo Alto Laboratory in terms of establishing a patent portfolio in mobile and ubiquitous computing. Further, patents on presentation support are related to the CardGear product offering from Fuji Xerox (since licensed to Toshiba Care Community, Japan).

- 7519573, System and method for clipping repurposing and augmenting document content
- 7286649, Telecommunications infrastructure for generating conversation utterances to a remote listener in response to a quiet selection
- 7272563, Personal computer and scanner for generating conversation utterances to a remote listener in response to a quiet selection
- 7251316 Methods and systems for enabling conversations about task-centric physical objects
- 7249327, System and method for arranging manipulating and displaying objects in a graphical user interface
- 106852 Telephone accessory for generating conversation utterances to a remote listener in response to a quiet selection

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Patents Granted Continued

- 7089278, Anchored conversations: adhesive in-context virtual discussion forums
- 7013279, Personal computer and scanner for generating conversation utterances to a remote listener in response to a quiet selection
- 6941342, Method for generating conversation utterances to a remote listener in response to a quiet selection
- 6823184, Personal digital assistant for generating conversation utterances to a remote listener in response to a quiet selection
- 6773177, Method and system for position-aware freeform printing within a position-sensed area
- 6732915, Systems and methods for controlling a presentation using physical objects
- 6580438, Systems and methods for maintaining uniformity in a presentation environment
- 6509909, Systems and methods for controlling a presentation using physical objects
- 6320496, Systems and methods providing tactile guidance using sensory supplementation
- 6195093, Systems and method for controlling a presentation using physical objects
- 6175954, Computer programming using tangible user interface where physical icons (phicons) indicate: beginning and end of statements and program constructs; statements generated with re-programmable phicons and stored

Teaching Experience

- University of Wisconsin, Madison, Wisconsin, Lecturer, Mathematical Programming Seminar, 1982, Developed instruction material and presented graduate seminar on Linear Programming.
- University of Wisconsin, Madison, Wisconsin, Teaching Assistant, 1979-1982, Independently designed instructional material and gave undergraduate course in Introduction to Computer Programming

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Technical Reports

Selected PARC Internal Documents delivered to Customers

- Churchill, E.F., Nelson,, L.D., et. al., (2006) Tools Theme Final Report, January 2006
- Nelson,, L.D.,and Churchill, E.F., (2005) Structured Email, June 2005
- Nelson,, L.D., and Churchill, E.F., (2005) Collaboration in KMSE, June 2005
- Churchill, E.F., (2005) KMSE Field Work Methods, March 2005

Selected Lockheed Technical Reports in Software Engineering delivered to Customers

- Nelson, L.D., (first author), Lockheed Software Reengineering Process, Lockheed Missiles and Space Company, 1994
- Nelson, L.D., (first author), Telstar Systems Software Development Process, 1992
- Nelson, L.D., (co-author), Telstar Systems System Engineering Process, 1992
- Nelson, L.D., (co-author), Telstar Systems Unit and Acceptance Test Process, 1992