

Vita

Mark S. Miller is the main designer of the E and Caja object-capability programming languages, inventor of Miller Columns, a pioneer of agoric (market-based secure distributed) computing, an architect of the Xanadu hypertext publishing system, and a representative to the EcmaScript committee.

Education

Johns Hopkins University, Baltimore, Maryland. *Advisor: Jonathan S. Shapiro.*
Ph.D., Computer Science, 2006.

Yale University, New Haven, Connecticut. B.S., Computer Science, 1980.

Employment

Research Scientist, Google, Inc. *2007 to Present.* Designed language component of Caja, an enforced object-capability subset of JavaScript. Representing Google on the EcmaScript committee, helping design EcmaScript 5 and EcmaScript Harmony. Designing Dr. SES—Distributed Resilient Secure EcmaScript—turning JavaScript into a decent distributed secure programming language.

Open Source Coordinator, ERights.org *1998 to Present.* Leading the open source design and development of the E programming language.

Visiting Scientist, Virus-Safe Computing Initiative, Hewlett-Packard Laboratories, *2003 to 2007.* Contributor to projects applying least authority (Polaris, CapDesk, DarpaBrowser), secure naming for phishing-proof browsing (Petname tool, Passpet), rights-transfer protocol design (IOU protocol), decentralized computational market infrastructure (DonutLab).

Chief Technology Officer, Combex, Inc. *2000 to 2003.* Founder. Contributor to CapDesk and the DarpaBrowser.

Director, Extropy Institute *1997 to 2003.* The Extropy Institute promotes un-

derstanding of both the promises and dangers of future technologies.

Chief Architect, E platform, Electric Communities, Inc. 1996 to 1998. Led both the Original-E and E efforts. Brought Original-E to sufficient maturity to support Electric Communities Habitats, a secure decentralized virtual world. Chief architect of Habitat’s security architecture. Contributor to Habitat’s distributed object architecture.

Senior Software Architect, Agorics, Inc. 1994 to 1996. Co-Founder. Technical lead of Sun Lab’s WebMart framework for object-capability-oriented electronic commerce. Built and demonstrated at Interop an ATM Network Bandwidth Auction, six months after starting the Sun Labs contract. Contributor to the Joule language.

Co-Director, George Mason University Agorics Project, 1994 to 2001. We explored the question: What can economics (especially plan-coordination economics) learn from software engineering?

Co-Architect, Project Xanadu, Xanadu Inc. 1989 to 1994. Xanadu was a distributed hypertext publishing system that preceded and influenced the Web. Initiated the Trusty Scheme project, which built a W7-like secure programming language for enabling safe active content in hypertext pages.

Consultant, Xerox Palo Alto Research Center. 1985 to 1988. Co-creator of the agoric paradigm of market-based computation. Co-founder of the Vulcan project.

Software engineer, Datapoint Technology Center, 1980 to 1985. Created the first commercial distributed window system, VistaView.

Publications

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3rd place at the AT&T Best Applied Security Paper Award competition.

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Leo Meyerovich, Adrienne Felt, Mark S. Miller. “Object views: Fine-grained sharing in browsers.” Proceedings of the International Conference on World Wide Web, 2010. research.google.com/pubs/archive/36273.pdf.

Terry Stanley, Tyler Close, Mark S. Miller. “Causeway: a message-oriented distributed debugger.” HP Tech Report HPL-2009-78, 2009. research.google.com/pubs/archive/35127.pdf.

Mark S. Miller, Jed Donnelley, Alan H. Karp. “Delegating Responsibility in Digital Systems: Horton’s.” 2nd USENIX Workshop on Hot Topics in Security, 2007. research.google.com/pubs/archive/33037.pdf.

Mark S. Miller. “Tradeoffs in Retrofitting Security: An Experience Report.” Dynamic Languages Symposium, 2007.

Marc Stiegler, Alan H. Karp, Ka-Ping Yee, Tyler Close, and Mark S. Miller. “Polaris: Virus Safe Computing for Windows XP.” *Communications of the ACM*. 49(9) pages 83–88, September 2006. doi.acm.org/10.1145/1151030.1151033 hpl.hp.com/techreports/2004/HPL-2004-221.html.

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Mark Samuel Miller. “Robust Composition: Towards a Unified Approach to Access Control and Concurrency Control.” PhD thesis, Johns Hopkins University, Baltimore, Maryland, USA, May 2006. www.erights.org/talks/thesis/

Mark S. Miller, E. Dean Tribble, and Jonathan S. Shapiro. “Concurrency Among Strangers: Programming in E as Plan Coordination.” *Proc. 2005 Symposium on Trustworthy Global Computing*, European Joint Conference on Theory and Practice of Software 2005. Appears in volume 3705 of Lecture Notes in Computer Science, pages 195–229. Springer, 2005. www.erights.org/talks/promises/index.html

Mark S. Miller, Bill Tulloh, and Jonathan S. Shapiro. “The Structure of Authority: Why Security Is Not a Separable Concern.” *Proc 2nd International Conference on*

Multiparadigm Programming in Mozart/OZ (MOZ/2004), Charleroi Belgium, pages 2–20, October 2004. www.erights.org/talks/no-sep/

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Fred Spiessens, Mark S. Miller, Peter Van Roy, and Jonathan S. Shapiro. “Authority Reduction in Protection Systems.” 2004. www.info.ucl.ac.be/people/fsp/ARS.pdf

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K. Eric Drexler and Mark S. Miller. “Incentive Engineering for Computational Resource Management” In Bernardo Huberman, editor, *The Ecology of Computation*, North-Holland, 1988. www.agorics.com/Library/agoricpapers.html

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