

Nathan Ensmenger

History & Sociology of Science Department • University of Pennsylvania
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Assistant Professor, History & Sociology of Science (2003-present)
Undergraduate Chair, Science, Technology, and Society (2005-present)

EDUCATION:

Princeton University, BSE, Civil Engineering & Operations Research, 1994

Thesis: "Medical Expert Systems: Decision Models & Ethical Issues"

Awarded the Class of 1882 Memorial Writing Prize

University of Pennsylvania, PhD, History & Sociology of Science, 2001

Dissertation: From "Black Art" to Industrial Discipline: The Software Crisis and the Management of Programmers

Advisors: Emily Thompson, Robert Kohler, Walter Licht

RESEARCH INTERESTS:

Links between the social history of the software professions and contemporary innovations in computer technology; the formation of a computing sub-culture and an "aesthetic" of programming; the role of women in the history of information processing; the development of national information technology policies.

PUBLICATIONS:

– Books –

The Computer Boys Take Over: Computers, Programmers, and the Politics of Technical Expertise (MIT Press, 2010)

The Origins of the Information Society (under contract with Johns Hopkins University Press, forthcoming)

– Book Chapters –

"Making Programming Masculine," in Tom Misa, ed. *Gender Codes: Women and Men in the Computing Professions* (Wiley, 2010)

"Resistance is Futile? Reluctant and Selective Users of the Internet," in P. Ceruzzi and W. Aspray (eds.) *The Internet and American Business* (MIT Press, 2008). Winner of the Choice Outstanding Academic Title, 2008.

"Sports Fans and their Information Gathering Habits," in William Aspray and Barbara

Hayes (eds.), *Information and Everyday Life* (MIT Press, forthcoming). With Jameson Otto and Sara Metz.

– **Refereed Articles (submitted)** –

“Why Docs Don’t Do Email: Computers and Medical Decision Making,” Under review for the *Journal of the History of Medicine & Allied Sciences*.

– **Refereed Articles (published)** –

“Is Chess the Drosophila of AI? A Social History of an Algorithm.” Accepted for publication in *Social Studies of Science* (forthcoming)

“Computing for the humanities and social sciences,” in W. Aspray and A. Aker (eds.) *Using History To Teach Computer Science and Related Disciplines* (Washington, D.C.: Computing Research Association, 2004)

“Letting the ‘Computer Boys’ Take Over: Technology and the Politics of Organizational Transformation,” *International Review of Social History* 48:11 (2003), pp. 152-180.

“The ‘Question of Professionalism’ in the Computing Fields,” *IEEE Annals of the History of Computing* 4(2001), pp. 56-73.

“Software as Labor Process,” in *Mapping the History of Computing: Software Issues*, U. Hashagen, R. Keil-Slawik, A. Norberg, eds. (New York: Springer-Verlag, 2002). With William Aspray.

– **Published Essays (invited, not refereed)** –

“Software as History Embodied,” *IEEE Annals of the History of Computing* 31:1(2009), pp. 89-91.

“The Computer: Mechanizing the Information Age,” *Oxford Encyclopedia of the Modern World* (Oxford University Press, 2008)

“Computers as Ethical Artifacts,” *IEEE Annals of the History of Computing* 29:4(2007), pp. 95-96.

“Open Source’s Lessons for Historians,” *IEEE Annals of the History of Computing* 26:4(2004), 103-104.

“Power to the people: toward a social history of computing,” *IEEE Annals of the History of Computing* 26:1(2004), pp. 95-96.

“The Development of Computer Languages,” in *Science and its Times: Understanding the Social Significance of Scientific Discovery*, Neil Schlager, ed. (Cambridge, MA: Gale Publishing, 2000)

– Reviews –

- Review of Nils Nilsson, *The Quest for Artificial Intelligence* (Cambridge University Press, 2010), *Isis*
- Review of Lars Heide, *Punch-Card Systems and the Early Information Explosion, 1880-1945* (Johns Hopkins University Press, 2009), *Technology & Culture*
- Review of Jessica Johnston, *Technological Turf Wars: A Case Study of the Computer Antivirus Industry* (Temple University Press, 2009), *Technology & Culture*
- Review of Paul Ceruzzi, *Internet Alley: High Technology in Tysons Corner, 1945-2005* (MIT Press, 2008), *Harvard Business Review*
- Review of J. Storrs Hall, *Beyond AI: Creating the Conscience of the Machine* (Prometheus, 2006), *Isis*
- Review of Carroll Pursell, *The machine in America: a social history of technology*, 2nd edition (Johns Hopkins Press, 2007), *Economic History Review*
- Review of Joel Shurkin, *Broken genius: the rise and fall of William Shockley, creator of the electronic age* (Macmillan, 2006), *Technology & Culture*
- Review of Kevin Maney, *The Maverick and His Machine : Thomas Watson, Sr., and the Making of IBM* (J. Wiley & Sons, 2003), *Harvard Business History Review*
- Review of Alfred D. Chandler, *Inventing the Electronic Century: The Epic Story of the Consumer Electronics and Computer Industries* (Harvard University Press, 2005), *Technology & Culture*
- Review of Thomas Misa, *Leonardo to the Internet: Technology & Culture From the Renaissance to the Present* (Johns Hopkins University Press, 2004), *Historical Studies in the Physical and Biological Science*
- Review of Ross Bassett, *To the Digital Age: Research Labs, Start-Up Companies, and the Rise of MOS Technology* (Johns Hopkins University Press, 2002), *Isis*
- Review of Steven Weber, *The Success of Open Source* (Harvard University Press, 2004), *Technology & Culture*
- Review of Douglas Thomas, *Hacker Culture* (University of Minnesota Press, 2002), *IEEE Annals of the History of Computing*
- Review of Martin Campbell-Kelly, *From Airline Reservations to Sonic the Hedgehog: A History of the Software Industry* (MIT Press, 2003), *IEEE Annals of the History of Computing*
- Review of Alice Burks, *Who Invented The Computer? The Legal Battle That Changed Computing History* (Prometheus Books, 2002) , *American Scientist*

Review of Theirry Bardini, *Bootstrapping: Douglas Englebart, Coevolution, and the Origins of Personal Computing* (Stanford University Press, 2000), *Business History Review*

Review of Raul Rojas and Ulf Hashagen (eds.), *The First Computers: History and Architectures* (Cambridge, MA: MIT Press, 2000), *IEEE Spectrum*

Review of I. Bernard Cohen, *Howard Aiken: Portrait of a Computer Pioneer* (MIT Press, 1999) and I. Bernard Cohen and Gregory W. Welch, eds. , *Makin' Numbers: Howard Aiken and the Computer* (MIT Press, 1999), *Business History Review*

– **Electronic Publications** –

America's Golden Age of Medicine? Health, Medicine, and American Culture, 1930-1960, Web-based teaching resource and textbook used by various courses in the *Health and Societies Program* at the University of Pennsylvania, as well as in history of science and medicine programs at Cornell University, University of Minnesota, and Virginia Tech.

Available online at:

<http://ccat.sas.upenn.edu/goldenage>

CONFERENCES/PRESENTATIONS:

Stanford University, invited for February 2011

"Running Code, Working Women: Rethinking Gender in Computer Science Education"

Philadelphia Area Consortium for the History of Science, October 2010

"Is Chess the Drosophila of AI? Computer Games as Experimental Technologies in Artificial Intelligence."

Lorentz Center, University of Leiden, September 2010

Keynote speaker, *Software History: European Styles*

Society for the History of Technology, September 2010

"Materiality and Immateriality in the History of Computing"

Wharton School, Executive Program in Work-Learning, April 2010

"Information, Technology, and Organizational Development"

Society for the History of Technology, October 2009

"From Computer Operations to Operating Systems: The Hidden Costs of Business Computing."

IEEE History Center, August 2009

"Engineering a Professional Identity: The Place of Professional Societies in the History of Computing."

Copenhagen Business School, June 2009

Invited commentator, "IT Shaping Work Processes."

University of Minnesota, February 2009

"Is Chess the Drosophila of AI? Computer Games as Experimental Technologies in Artificial Intelligence."

Society for the History of Technology, Lisbon, Portugal, October 2008

"Fixing things that can never be broken: Software maintenance as heterogeneous engineering."

Wharton School, Executive Program in Work-Learning, August 2008

"The Sociology of Work in Information Technology."

Charles Babbage Institute, Gender and Computing Conference, May 2008

"Making Programming Masculine."

Drexel University, March 2008

"Cyborgs, Artificial Intelligences, and Meat Machines: Computers and the Reinvention of the Body."

Soft-EU Conference, Grenoble, France, January 2008

"The Software Crisis as a Crisis of Professional Identity."

Northwestern University, May 2007

Media, Technology, and Society Program

"Why Docs Don't Do Email: Physicians and Professors as 'Reluctant' Users of the Internet."

University of Wisconsin, February 2007

School of Library and Information Sciences & Science Technology Studies

"Neither Luddites nor Sages: Physicians and Professors as Reluctant Users of the Internet."

Society for the History of Technology, October 2006

"Is Chess the Drosophila of AI? Computer Games as Experimental Technologies in Artificial Intelligence."

Artefacts XI, September 2006

Nobel Museum, Stockholm, Sweden

"A View from the Academy: Teaching the City as Technology."

Computers in Use: historical and social perspectives, July 2006

Centre for the History of Science, Technology and Medicine, Manchester, UK

"What's so hard about software? Computers and organizational transformation, 1952-1968."

Deutsches Museum von Meisterwerken der Naturwissenschaft und Technik, July 2006

"Necessary Intermediaries: Commerce and the Internet in an Historical Perspective."

Bates Seminar, Penn Nursing History Forum, April 2006

"The Cybernetician visits the Emergency Room: Early Visions of the Hospital as an Information System."

Labor and Employment Relations, January 2006

"'The Cosa Nostra of the Data Processing Industry': Computers, Programmers, and Other Corporate Subversives, 1959-1975."

International Association of Word and Image Studies, September 2005

"Wizards, Hackers, and Poets: The Power of Computer Codes and Other Incantations ..."

Fulbright Pre-Academic Program, July 2005

Invited lecture, "Thomas Kuhn and the Structure of Scientific Revolutions."

Johns Hopkins University, October 2004

"'The Cosa Nostra of the Data Processing Industry': Computers, Programmers, and Other Corporate Subversives, 1959-1975."

Wharton School, University of Pennsylvania, April 2004

"New Power for Management?: The Software Crisis and the Struggle for Organizational Control Over Electronic Computing, 1959-1975."

Stanford University, February 2003

Center for Work, Technology, and Organizations

"Letting the 'Computer Boys' Take Over: Technology and the Politics of Organizational Transformation."

Penn Economic History Forum, December 2002

"The Computer Revolution in the Corporation."

Indiana University, December 2002

"Mongolian Horde versus Superprogrammer": Managers, Programmers, and the Origins of Software Engineering."

Northwestern University, April 2002

"Information Infrastructure: Technological, Human, and their Intersections."

Using History to Improve Undergraduate Teaching of Computer Science

Computing Research Association, National Science Foundation, August 2001

University of Wisconsin - Madison, invited lecture, April 2001

"Aristocracy, Democracy, and Systems Design."

American Historical Association, January 2001

"Letting Form Follow Function: Using Web-Based Resources for More Than Just an Electronic Syllabus."

Colby College, invited lecture, January 2001

"The Rise of the U.S. Software Industry, 1946-1980"

Cornell University, invited lecture, December 2000

"From 'Black Art' to Industrial Discipline: Towards a Social History of Software Development."

History of Science Society Conference, November 2000 (Vancouver, B.C.)

"Chess Players, Music Lovers, and Mathematicians: Towards a Psychological Profile of the Ideal Computer Scientist."

Society for the History of Technology Conference, 2000 (Munich)

"From 'Computer People' to Software Engineers: The Professionalization of Programming."

Pacific Northwest Labor History Conference, 2000

"The Software Crisis and the Management of Programmers."

International Conference on the History of Computing, 2000 (Paderborn, Germany)

"Software as Labor Process."

American Association of Historians of Medicine Conference, 1999

"America's Golden Age of Medicine? Exploring the Promise of the World Wide Web for the Teaching of the History of Medicine."

Society for the History of Technology Conference, 1998

"Building Castles in the Air': The Software Crisis and the Art of Programming, 1945-1968."

MEDIA APPEARANCES

Consulting historian, *Top Secret Rosies: The Female 'Computers' of WWII* documentary (producer/director LeAnn Erickson), September 2010.

Interview on the social history of computing, **Chicago Public Radio**, *Odyssey* (hosted by Gretchen Helfrich), July 2005.

FELLOWSHIPS AND AWARDS:

Penn Humanities Forum Fellow (2005–2006)

University of Pennsylvania, Distributed Learning Venture Fund Grant (2001)

Charles Babbage Institute, Tomash Fellowship in the History of Information Processing (2000)

University of Pennsylvania SAS Dissertation Fellowship (2000)

University of Pennsylvania Graduate Fellowship Award (1996-1999)

Nominated for the Dean's Award for Distinguished Teaching (1998, 2009)

Princeton University, Class of 1882 Memorial Writing Prize

Lawrence Wotring Academic Merit Scholarship (1990)

National Merit Scholar (1990)

– **Grants** –

[NSF Proposal 1058258: *Engineering the Postcolonial Technologist: British Computing Companies' Foreign Training Offices and the Promise of Global IT, 1950-1970*. Science, Technology, and Society Unit Postdoctoral Fellowship. Application submitted August, 2010]

DEPARTMENT & UNIVERSITY SERVICE:

Undergraduate Chair, Science, Technology, and Society Program (2005-2009, 2010-)
Graduate Admissions Committee, History & Sociology of Science Department (2003-)
Faculty Search Committee, History & Sociology of Science Department (2004, 2005)
Pre-Major Advisor, College of Arts & Sciences (2006-2007, 2008-2009, 2009-2010)

Penn Humanities Forum Selection Committee (2009-2010)

Penn Reading Project (2004, 2005)

PROFESSIONAL SERVICE:

Hacker Prize Committee, Society for the History of Technology (2009-)

List editor, **H-SCI-MED-TECH** (2005-)

Franklin Institute

Advisory Committee, Case Files in the History of Science Project.

IEEE Annals of the History of Computing

Editorial Board (December 2001-present)

National Aeronautics and Space Administration

Review panel (2007)

National Science Foundation

Proposal reviewer, Science and Technology Studies Program

Business History Review

Served as a referee for articles related to information technology issues.

Technology & Culture

Served as a referee for articles related to information technology issues.

Isis

Served as a referee for articles related the history of science.

TEACHING EXPERIENCE:

- Assistant Professor, **History & Sociology of Science**, *University of Pennsylvania* (2003-)
- Instructor, **Wharton School of Business/Graduate School of Education**, Executive Education program in Work-Learning Leadership (2008-2010)
- Instructor, **Fulbright Academic Program** (2005, 2009, 2010)
- Instructor, ethics and engineering design, **Electrical Engineering Department, School of Engineering & Applied Science**, *University of Pennsylvania* (2001-).

THESIS ADVISING:

PhD Dissertation Committees

- Damon Yarnell, "Behind the Line: Purchasing Agents, Inter-firm Control and the Advent of Mass Production at Ford Motor Company, 1908-1927." (History & Sociology of Science, 2010)
- Corinna Schlombs, "International History of Computing. Technology Transfer between the US and Western Europe." (History & Sociology of Science, 2010)
- Mary Francone, "Participatory Technologies as a Learning Tool: Employee's Perception and Use" (Wharton School, 2010)
- Jennifer Hobbs, "Naming Power: A Historical Analysis of Clinical Information Systems, 1970-1990." (Nursing History Program, 2008)

MA Thesis Advisor

- Dana Saewitz, "Technology, Pessimism, Postmodernism and the Omnipresent iPod" (2006)
- Eian More, "Deviant Behavior in Virtual Communities: Griefing in Second Life" (2007)
- Renee Ricker, "Electronic Books and the Future of Publishing and Reading" (2007)
- Jocelyn Cuevas, "Communications Technology and the Filipino Diaspora" (2009)
- DeAnna Chung, "Forgetting in the Digital Age" (2010)

Senior Thesis Advisor

- Schuyler Ferguson, "Dynamic Trust Mechanisms in Cyberspace: How do users and systems respond to anonymity online?" (2008)
- Anthony Rizzo, "MIMS: How practicing physicians access information to answer clinical questions." (2008)
- Eileen McKeown, "The Role of Information Systems in Fundraising and Advertising for Community Service Organizations." (2010)
- Alison Mishkin, "Designing Trust: Parents, Children & Web-Based Communities." (2010)