

coordinates	<p>c/o Sha Hsing Min 35 Bartlett Avenue Lexington, Massachusetts 02420 USA</p> <p>sha@fas.harvard.edu</p> <p><a href="http://topologicalmedia.net">http://topologicalmedia.net</a> <a href="http://www.lcc.gatech.edu/~xinwei/">http://www.lcc.gatech.edu/~xinwei/</a> <a href="http://sponge.org">http://sponge.org</a></p>
academic experience	<p>Assistant Professor. School of Literature, Communication and Culture, Center for New Media, and Graphics, Visualization &amp; Usability Center, College of Computing, Georgia Institute of Technology, 2001 - present.</p> <p>Ph.D. Mathematics Department, Stanford University, 2001. Field: Critical and cultural studies of mathematics, science and technology.</p> <p>Visiting Scholar - History and Philosophy of Science, Stanford, 1998-2000.</p> <p>M.A. Mathematics, Stanford University.</p> <p>A.B. Mathematics <i>cum laude</i>, Harvard University.</p>
research interests	<p>Critical studies of technology and of media arts and sciences; gesture, materiality, performance and architecture.</p> <p>Computer science: responsive media spaces, topological and computational media, wearables, gesture-based interaction; visualization and simulation.</p> <p>Phenomenology of differential geometry.</p>
dissertation	<p>Differential Geometric Performance and the Technologies of Writing.</p> <p>Advisor: Rafe Mazzeo (Mathematics). Readers: Tim Lenoir (History and Philosophy of Science) and Terry Winograd (Computer Science).</p>

professional  
experience

1998-1999. Researcher, Interval Research Corporation.

Basic research in mathematics of unsupervised learning. Developed and disseminated methods for computer vision based on geometric evolution.

1995-1998. Human-Computer Systems Architect and Senior Researcher, Academic Systems Development Project, Stanford University.

Supervised doctoral student research. Led faculty seminars on media theory, interaction and performance technology. Produced strategic studies for University-wide commissions, analyzing emergent technologies and trends in computer science, mapping to projected needs of widely variant university communities. Led technical teams to integrate information and multimedia network infrastructure.

1991-1995. Systems Architect and Technical Lead.

Designed and architected MediaWeaver, a distributed media authoring framework unifying relational and object-oriented databases, text and image and multimedia search engines and custom media authoring tools. Led technical teams supporting 13 multimedia and distributed media projects over three years. Strategic liaison with Apple, Taligent, Kaleida, IBM on joint university-industry research.

1985-1990. Project Leader, Framework Developer, Course Authoring Tools Project.

Constructed mathematical models with faculty researchers and wrote scientific simulations in quantum cosmology, geophysics, epidemiology. Designed & implemented object-oriented mathematics system for authoring environments. Consulted with Apple and NeXT on scientific computation projects.

1984-1985. Project Lead, Scientific Programmer, Faculty Author Development Project.

Led Cabrera Physics Simulations Project. Wrote physics simulations in team of programmers in Apple-IBM-Stanford collaborative project on graphical personal computers.

## grants

Daniel Langlois Foundation for Art, Science and Technology, Independent Artist, Softwear Instruments, 2003.

Rockefeller Foundation, Boundary Crossings: New Modes of Cultural Production, 2003, sponge / Code Zebra.

LEF Foundation, Sauna, 2002, sponge.

Creative Work Fund, Sauna, 2002, sponge.

Daniel Langlois Foundation for Art, Science and Technology, sponge TGarden, 2001.

GVU Seed Grant, Wearables for Performance, 2001.

selected  
publications

- "TGarden Experimental Performance Project," *Modern Drama* (to appear 2005).
- "Expressive Softwear and Ambient Media," with Yoichiro Serita, Jill Fantauzza, Steven Dow, Giovanni Iachello, Vincent Fiano, Joey Berzowska, Yvonne Caravia, Delphine Nain, Wolfgang Reitberger, Julien Fistre, in *Adjunct Proceedings of Ubicomp 2003*.
- "Continuous sensing of gesture for control of audio-visual media.," with Giovanni Iachello, Steven Dow, Yoichiro Serita, Tazama St. Julien, Julien Fistre, in *ISWC 2003 Proceedings*.
- "Resistance Is Fertile: Gesture and Agency in the Field of Responsive Media," in *Makeover: Writing the Body into the Posthuman Technoscape, Two-Part Special Issue*, Baltimore: Johns Hopkins University Press, Part 2: *Configurations*, Vol 10, Number 3, Summer 2002 (in press).
- "TG2001 As an Experiment in Autonomously Producing Culture," (in preparation for CODE volume 2003).
- "Authorship and Surgery: The Shifting Ontology of the Virtual Surgeon," with Timothy Lenoir, in Bruce Clarke and Linda Dalrymple Henderson, ed., *From Energy to Information: Representation in Science and Technology, Art, and Literature*, Stanford University Press, 2002.
- "Sustainable Arenas for Weedy Sociality | Distributed Wilderness," with Maja Kuzmanovic, *Proceedings CPSR Directions and Implications of Advanced Computing Symposium in Seattle (DIAC 2002)*.
- "Speechpainting - An Architectural Medium," *FineArtForum*, October 2001, vol 15, no. 10.
- "Sponge, The Surface That Holds the Image is Unstable," with sponge, *éc/artsS:#2[00\_01], Spécial: Textualités & Nouvelles Technologies*, Fall 2000.
- "Cathedral, Tool or Framework? MediaWeaver As a Distributed Scholarly Workspace," in *Augmenting Comprehension: Digital Tools and the History of Ideas*, ed. Dino Buzzetti, Giuliano Pancaldi, and Harold Short, (London: Office for Humanities Communcation, Kings College London), 2004, pp. 101-112..
- "The Geometer's Workbench: An Experiment in Interacting with a Large, High Resolution Display," with Françoise Guimbretière and Terry Winograd, Stanford CS Technical Report CS-TR-2000-05, May 2000. (paper  
[http://graphics.stanford.edu/~francois/video\\_stubs/Geometer.ram](http://graphics.stanford.edu/~francois/video_stubs/Geometer.ram)).
- "From Representation to Performance: Responsive Public Space," with Maja Kuzmanovic, *Proceedings CPSR Directions and Implications of Advanced Computing, Seattle Symposium (2000)*.
- "The Virtual Edge – Tracing the Postmodern Surgeon," with Tim Lenoir, *Proceedings of Energy To Information Conference in Austin, Texas: (Forthcoming, Stanford University Press)*.
- "The Blackboard As a Collaborative Learning Technology." *Computer-Supported Collaborative Learning (2000)*.
- "Wavelet-Based Image Indexing Techniques with Partial Sketch Retrieval Capability." with James Ze Wang, Gio Wiederhold, Oscar Firschein, *Advances in Digital Libraries (1997)*.

- "MediaWeaver and Networked Scholarly Workspaces." *Multimedia Systems Journal* 6.2 (1996) 97-111.
- "MMDB: A Meta-testbed for Distributed Multimedia." *Proceedings of AAI Workshop Indexing and Reuse in Multimedia Systems* (1994).
- artifacts and events  
(students or apprentices  
in italics)
- "Membrane: Van Nelle Ontwerpfabriek 1930," calligraphic video installation, DEAFo4: Dutch Electronic Art Festival, V2, Rotterdam, November 9-21, 2004 with *Harry Smoak*, Yoichiro Serita, Chris Salter, *Delphine Nain Maria Cordell*.
- "Expressive softwear for TGarden responsive playspaces," Ubicomp Demonstration 2003, with Joey Berzowska, Arek Basirisk, *Jill Fantauzza*, *Yvonne Caravia*.
- "Greeting dynamics using expressive softwear," Ubicomp Demonstration 2003, with *Jill Fantauzza*, *Stephen Dow*, *Giovanni Iachello*, and Joey Berzowska.
- "Soft architecture: ambient responsive media for collective and parallel play," Ubicomp Demonstration 2003," with *Yoichiro Serita*, *Pegah Zamani*, *Delphine Nain*.
- "Gestural audio softwear instruments," Ubicomp Demonstration 2003, with *Yoichiro Serita*, *Stephen Dow*, *Giovanni Iachello*, *Julian Fistre*.
- "Frank's Ears" speechpainting installation, Georgia State University, Atlanta, 2003.
- "Saunao2" outdoor interactive immersion machine, with sponge, The Lab, San Francisco, 2002.
- "Hubbub Study," speech-driven dynamic typography, Technopoetry Festival, Atlanta, 2002.
- "Plaza Teleopolis," speech & animated glyph projection, San Francisco Exploratorium, 2nd Wednesdays, 2002.
- "Sauna Study," interactive installation, with *sponge*, San Francisco Exploratorium, 2nd Wednesdays, 2002.
- "Slip," multi-perspective video installation, with Tirtza Even, Postmasters, New York City, USA, 2001.
- "TG2001," responsive environment, with TGarden Consortium, V2, Rotterdam, Netherlands, 2001.
- "TG2001," open lab, with TGarden Consortium, Ars Electronica 2001, Linz Austria.
- "TGarden," responsive environment: fabric, sound and projected video, *Medi@terra* 2000, Athens, Greece, with FoAM and *sponge*.
- "TGarden," responsive space, *Siggraph* 2000, New Orleans, with FoAM and *sponge*..
- "m3" digital art, 3d animation and video, with *sponge*, 1999.
- "m2" installation/performance/concert at *The Lab*, San Francisco, with *sponge*. Documented as interactive cdrom, 1998.
- "Global Demographics." Simulation & video, *Mathematica Journal* 2.4, 1994.
- American Sign Language Interactive Videodisc Project. With Cathy Haas. Videodisc and software, 1992.
- Cabrera Physics Simulations: mechanics, electromagnetism, statistical mechanics, 1985-1986.

- selected  
conference  
papers
- "Diagrammatological Surgery on Whitehead's Time in Concept of Nature," Society for Literature and Science, Austin, October 2003.
  - "Paleontology of Knowledge," Society for the Social Studies of Science, Atlanta October 2003.
  - "Numberless Shape," Society for Literature and Science, Pasadena, October 2002.
  - "A Dynamics-based Media Choreography Engine," with *Yon Visell* and Blair MacIntyre, (in preparation, 2003).
  - "Differential Geometrical Writing as Poietic Technology," Society for Social Studies of Science, Boston, 2001.
  - "Geometric Writing As Performance," Society for Literature and Science, 2000.
  - "Performing Publicly in Responsive Space: Agora, Piazza, Festival and Street," European Association for the Social Studies of Technology, Vienna, 2000.
  - "Geometric Measure Theory As Monster Mash," Society for Literature and Science, and Society for Social Studies of Science, 1999.
- manuscripts  
in  
preparation
- Mathematics, Writing, Poiesis, editor, collection of essays by collaborators in literary studies and philosophy.
  - Phenomenology of Differential Geometric Writing, under review.
- selected  
invited talks
- "An Evening with Sponge," DEAFo4, Rotterdam, November 11, 2004.
  - "The Topology of Gesture," Corpo-Topologies: Space and Materiality Panel, Society for Literature and Science, Paris, 2004.
  - "Topological Media Lab: Art Research on Gestural and Calligraphic Media," Inside/Outside: Responsive Environments and Ubiquitous Presence, Banff New Media Institute, August 2004.
  - "Gesture and Agency in the Field of Responsive Media," Cal-(IT)<sup>2</sup> Irvine Media Arts Hybrid Speaker Series, May 2004.
  - "Shaping Art Practice as a Mode of Research: TGarden and Responsive Media," Stanford Mellon Workshop: Critical Studies in New Media, May 2004.
  - "Topological and Responsive Media," Digital Media Visiting Artist Lecture Series, Rhode Island School of Design, Providence RI, March 2004.
  - "Le Geste entre Science et Art," Conférence du TeslabTEC, Université du Québec à Montréal Canada, January 2004.

selected  
invited talks

- "Does Felt Dream of Electric Sheep?" Carbon versus Silicon: Thinking Small/Thinking Fast Nanotechnology Conference, Banff Canada, August 2003.
- "Wearables for Responsive Environments," Future Physical *Respond* Symposium, Cambridge UK, April 2003.
- "Topological Media," Jan Van Eyck Institute, Maastricht, April 2003.
- "Dynamics on Simplicial Complexes for Media Choreography," Sony Computer Science Laboratory, Paris France, March 2003.
- "Mote- and Fabric-based Wearable Instruments," STEIM, Amsterdam March 2003.
- "Topological Media and Softwear for Responsive Spaces," U. Quebec at Montreal Canada, March 2003.
- "Resistance Is Fertile," Program in the Study of Imagination, Northwestern University, February 2003.
- "Wearable Sound," Future Physical *WearMe* Symposium, UK, December 2002.
- "Performance Technologies," EDA Lecture, Design | Media Arts, UCLA, October 2002.
- "Writing and Performance," Media Arts Research Studies, GMD St. Augustin, Germany, 1999.
- "Building A Better Blackboard," Berkeley Graphical User Interface Research seminar, 1999.
- "Geometer's Workbench," Stanford Computer Science Department Information Mural Group, 1998.
- "Technologies of Writing." University of Trondheim, Norway, 1997.
- "Mathematical Inquiry," San Francisco Exploratorium, Institute for Inquiry, 1996.
- "Scholarly Workspaces," U.C. Santa Barbara, 1996.
- "Networked Collaborative Learning Environments," Stanford Project-Based Learning Symposium, 1995.
- "MediaWeaver, A Framework for Composing Distributed Media," Digital Libraries seminar, Stanford Computer Science Department, 1995.
- "SiliconBase." Workshop on Digital Libraries in Science and Technology Studies, New Orleans, 1994.
- "Interactive Media Spaces," San Francisco Museum of Modern Art, 1994.
- "Collaborative Multimedia." Beyond the Obvious, ACM Multimedia Panel, 1994.
- "Distributed Multimedia." People Computers and Design seminar, Stanford Computer Science Department, 1994.

workshops panels	<p>"Mathematics, Writing and Poiesis," Chaired Panel, Society for Literature and Science, Pasadena, 2002.</p> <p>"Special Faculty Respondent, Intimate Technologies, Banff New Media Institute, 2002.</p> <p>"Mathematics, Writing and Poiesis," Chaired Panel, Society for Social Studies of Science, 2001.</p> <p>"Personal Narrative Spaces," Chaired Panel, ACM Multimedia, 1995.</p>
technical reports	<p>"TGarden Media Choreography System," with Blair MacIntyre, Graphics, Visualization and Usability Center, Georgia Institute of Technology, 2002.</p> <p>"Oz Specification: A Media Evolution Engine Based on Hybrid Real-time Continuous and Discrete Dynamical Systems." Technical Report, School of Literature, Communication and Culture, Center for New Media, Georgia Institute of Technology, 2001.</p> <p>"TG2002 Architecture." Technical Report, School of Literature, Communication and Culture, Center for New Media, Georgia Institute of Technology, 2001.</p>
reviews	<p>Reviewer for Leonardo Journal, 2003. (1)</p> <p>Reviewer for Configurations Journal, 2002-present. (4)</p> <p>"Review of InterCall." Mathematica Journal vol.4 no. 1, 1994.</p> <p>"Review of Mathematica 2.0." Computers and Mathematics, Notices of the American Mathematics , 1992.</p> <p>"Review of Physics Curriculum Project." Annenberg Foundation 1988.</p>
reviews of work	<p>Benjamin Weil, "TGarden," <i>Leonardo</i>, Volume 35, Number 4 , October 2002.</p> <p>ArchiNed Netherlands Review of Architecture and Art, <a href="http://www.archined.nl/news/0110/tgarden.html">http://www.archined.nl/news/0110/tgarden.html</a> , 2001.</p> <p>Patrick Lichty, " Building a Culture of Ubiquity," VOYD, <a href="http://www.voyd.com/ubiq/space.htm">http://www.voyd.com/ubiq/space.htm</a> . 2001.</p>
award	<p>New York Digital Salon, Tenth Anniversary. For TG2001 production of TGarden, with Sponge, as one of the 100 most influential works of new art since the 1960's, October 2002.</p>

teaching experience	<p>2001 -2002. Assistant Professor, School of Literature, Communication and Culture, Information Design Technology, Georgia Institute of Technology:</p> <p style="padding-left: 40px;">Experimental Media: Responsive and Topological Media.</p> <p style="padding-left: 40px;">Architecture of Responsive Spaces.</p> <p style="padding-left: 40px;">Computer As an Expressive Medium? Programming Paradigms.</p> <p style="padding-left: 40px;">Hybrid Architecture and Habitation.</p> <p style="padding-left: 40px;">Technologies of Speech and Writing.</p> <p style="padding-left: 40px;">From Representation to Performance.</p> <p>1997-1999. Visiting Scholar and instructor, Stanford University: History of Science Sophomore Seminars on Virtuality, with Tim Lenoir</p> <p>1994-1997. Coordinator, Stanford University: Interaction and Media Group (IMG), Humanities Center faculty/student workshop.</p> <p>1991, 1992. Teaching Assistant, Stanford University: "Adaptive Pattern Recognition and Neural Networks."</p>
recent masters students	<p>Erik Conrad, Aether interactive installation, 2001-2002.</p> <p>Junko Tsumuji, StirVision motion capture re-projection, 2001-2002.</p> <p>Alex Cook, Tryptich interactive script, 2001-2002.</p> <p>James Hsu, Tryptich video installation, 2001-2002.</p> <p>Joel McGinnis, morphing music, 2001.</p> <p>Kulavee Tejavanija, TCostume experimental garment design, 2002.</p> <p>Jehan Samir Moghazy, HCI evaluation of play spaces, present.</p> <p>Yoichiro Serita, wearables, physical computing, realtime media, present</p> <p>Yvonne Caravia, active materials and body-based design, present.</p>
recent undergrad students	<p>Graham Coleman, speech-driven animation, 2002.</p> <p>Stephen Ingram, speech + dynamic typography, 2001-2002.</p> <p>Vinny Fiano, speech-driven animation, 2001-2002.</p>
professional affiliations	<p>Associate Editor, AI and Society</p> <p>Society for Literature and Science.</p> <p>Society for Social Studies of Science.</p> <p>Association of Computing Machinery.</p> <p>American Mathematics Society.</p> <p>Computer Professionals for Social Responsibility.</p> <p>Pliant Research Group – co-founder.</p> <p>sponge media art group – co-founder.</p> <p>Ground Zero, Bay Area Advisory Committee 2000.</p>
juries and boards	<p>Rockefeller Foundation Media Arts Fellowship 2003, 2004</p> <p>Canada Council / National Sciences and Engineering Research Council New Media Initiative</p> <p>Banff New Media Institute Advisory Board</p>
personal	<p>Born in Washington, D.C.</p>
languages	<p>English, Italian, Chinese, American Sign Language.</p>

