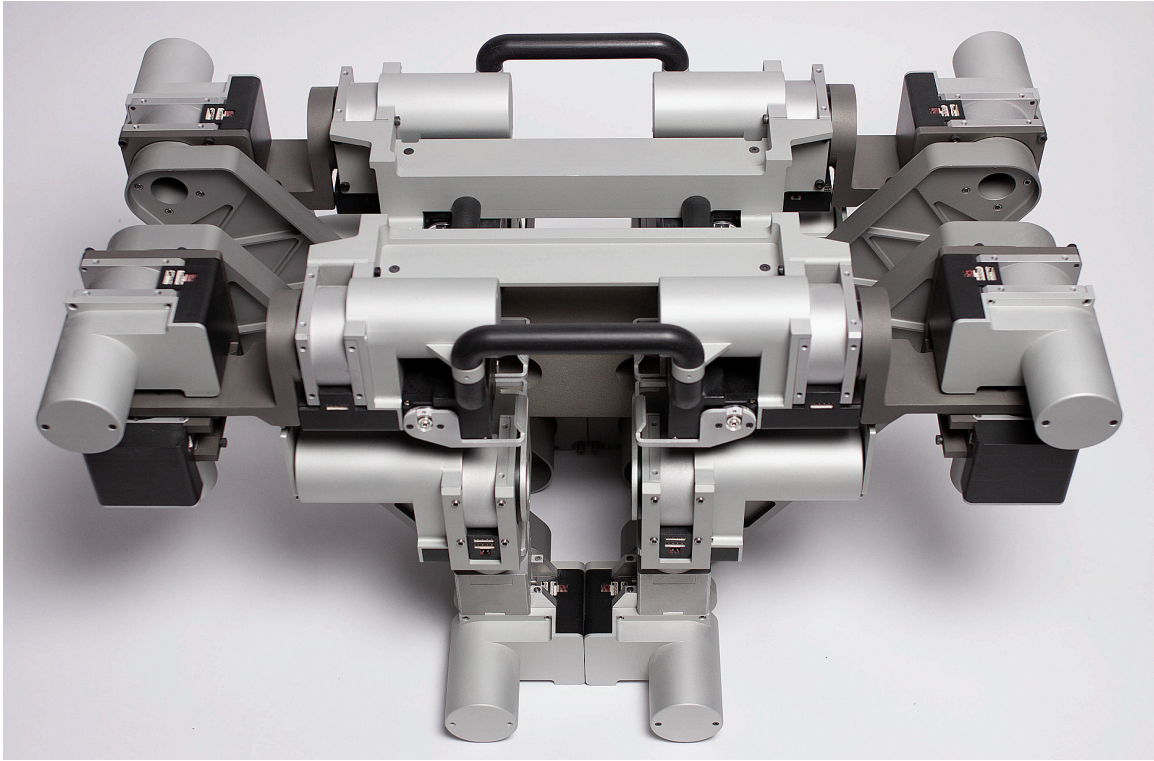


Mike Silver

michaelsilver@arizona.edu



Above: OSCR-5 (On-Site Construction Robot) is a fully functional, automated hod-carrier built from scratch using custom designed servo motors, machined aluminum and 3d printed titanium parts. (The project was made possible by funding from the National Science Foundation and Autodesk, Inc.)

Online:

[3DPrinting/COVID-19](#)

<https://formlabs.com/blog/university-of-kentucky-architecture/>

Composite Architectures:

<https://www.youtube.com/watch?v=iKiD7iMTn5I>

Metropolis Magazine: "The Man Behind the Robots" by Matthew Shen Goodman

<http://www.metropolismag.com/April-2016/Mr-Robot/>

R+D Awards: "Co-Robotics and Construction: OSCR-1-4 Prototypes"

http://www.architectmagazine.com/awards/r-d-awards/citation-co-robotics-and-construction-oscr-1-4-prototypes_o

Builtworlds Interview:

<http://www.builtworlds.com/news/2017/4/26/qa-michael-silver-of-the-university-of-buffalo-on-job-site-robotics>

Software Proficiency:

Rhino 7, 3D Studio Max, Maya, Solid Works, Microstation, Form Z, AutoCAD, Revit, Twinmotion, ZBrush, Photoshop, Illustrator, InDesign, Lightroom, Lightroom Classic, ROS, Grasshopper, Processing, Preform, Catalyst Ex, Magics.

Education

1991 Columbia University
New York, NY (Masters of Architecture and Building Design)
Design Thesis: Urban Drawing Machine
Core Studio Critics: Stan Allen, Diana Agrest, Maxamilliano Fuksas.

1987 Pratt Institute
Brooklyn, NY (Bachelor of Arts in Architecture)

Professional Practice

2003-2022 Critical Systems – Co-founded with Yee Peng Chia
Baptistry of Mont Saint Michel, Normandy, France, 2018.
OSCR 1-5 (On-Site Construction Robots) 2017.
Alamgir Office Block, Dhaka, Bangladesh, 2010.
San Jose Museum of Art and Design Competition, 2003.
Pentagon Memorial Competition, Washington, D.C., 2003.
The Endless Chair Project, 2001.
Iceberg Jeans, Flagship Store, Paris, France (Unbuilt), 1999.
The Switchable Glass House, Oregon, Coast, 1999.
Holocaust Memorial Competition, Albuquerque, NM. 1999.
Drowning Bridges, Venice Italy, 1998.

2007-2008 Rafael Vinoly (Research Fellow)
New York, NY.
Research into the production of ultra-light, long-span structural membranes.

2000-2001 I.M Pei and Partners
New York, NY.
Rapid prototypes, and digital models for a proposed extension to the Everson Museum of Art, Syracuse, New York, 2001.

1992-1993 Stan Allen Architect
New York, NY.
KOMA Project Competition, Los Angeles, California, 1993.
Drawing Table, construction of exhibited work for Stan Allen, Columbia University's Mini-Series, Between the Lines, Buell Hall, New York, 1990.

1990-1992 Reiser+ Umemoto
New York, NY.

Installation with Ben Nicholson at The NIAE exhibit, New York, 1991.
RAAUM Croton Aqueduct Project, New York, 1991,
Venice Gate Competition, Venice, Italy, 1990.

1986-1987 Skidmore, Owings and Merrill

New York, NY.

The New Madison Square Garden, New York, NY, 1987.

Office Tower for the Greenhut/Rockefeller Development Corp, New York, 1996. CMB Littledown Bank in England, 1995.

The Columbia Presbyterian Hospital, New York, NY, 1993.

Academic Appointments

2022 University of Arizona, College of Architecture, Planning and Landscape Architecture – Assistant Professor

2019-2021 University of Kentucky, College of Design – First year instructor.

2018-2020 ONE Lab –Director of Education, Current Faculty and Board of Advisory Member.

2016-2018 University at Buffalo (Assistant Professor)

Co-Founder and Director of Industry Outreach, SMART COE, (UB's Sustainable Manufacturing & Advanced Robotic Technologies Group)

Researcher in construction site automation and labor relations.

Researcher in high-performance computing and design simulation.

Second year undergraduate coordinator.

Second year undergraduate instructor.

Designed Matter seminar.

Theory of Technology Symposium.

Digital Furniture Design seminar.

2011-2013 Ball State University (Research Fellow)

Research into Social Media for nomadic cities

Graduate studio focused on advanced structures.

Undergrad seminar in mobile app development for construction.

Java programming seminar.

Senior thesis advisor.

2007-2010 Cornell University (Assistant Professor)

Undergraduate design studio.

Graduate design studio focused on Green Composite fabrication.

Java programming seminar.

Advanced metal casting using CNC fabrication tools.

Undergraduate thesis advisor.

- 2005-2007 Pratt Institute** (Adjunct Professor)
Brooklyn, NY.
First year design studio instructor.
Undergraduate design/build studio sponsored by Hunter Douglas.
Third year comprehensive design with Automated Dynamics.
Undergraduate thesis.
- 2004-2005 University of Michigan** (Research Fellow)
Research into customized software for new masonry structures.
Graduate studio on scripting for CNC wire cut concrete formwork.
Undergraduate core instructor.
- 2003-2003 Harvard GSD** (Adjunct Professor)
Design Studio Instructor, Third Semester Core.
- 2001-2003 Yale** (Assistant Professor)
Director of Digital Media.
Undergraduate studio design studio instructor.
Graduate studio assistant for Greg Lynn.
Digital Construction seminar.
Computer-Aided Mapping seminar.
Architecture and Design Informatics: Theory of Technology seminar.
Computer-Aided Furniture Design seminar.
- 2000-2001 Ohio State** (Research Fellow)
Researched into advanced techniques of digital cartography
Graduate design studio.
Undergraduate studio instructor.

Honors and Awards

- 2016 U.S. patent granted for S-glass Fiber-Placed Truss:** with Automated Dynamics, Pub. No.: US 2013/0180194 A1
- 2015 Architecture Magazine R+D Award:** Citation for OSCR 1-4: On-Site Construction Robot.
- 1999 Next Wave Design Competition:** Grand Prize, NIDC, Nagoya, Japan.
- 1998 New York Foundation for the Arts:** Fellowship, NYFA Grants program.
- 1996 Young Architects Competition:** Architecture League Gallery, Architecture League of New York.

1987 **AIA Henry Adams Certificate of Achievement**, Pratt Institute School of Architecture, Brooklyn, NY.

1987 **Certificate of Design Excellence**, Pratt Institute School of Architecture, Brooklyn, NY.

1982 **Award for Excellence in the Visual Arts**, Hackely School, Tarrytown, NY

Grants and Sponsored Research

2016 **International Union of Bricklayers and Allied Craft Workers** Grant for on-Site Construction Robotics. (\$10,000)

2016 **National Science Foundation** Research grant for On-Site Construction Robotics. (\$ 20,000)

2016 **AutoDesk Grant** for On-Site Construction Robotics hardware fabrication. (\$35,000)

2015 **UB SMART CoE** Sustainable Manufacturing and Advanced Robotic Technologies, Community of Excellence. (\$3,300,000 State Grant)

2014 **AIA Upjohn Research Initiative**, Grant for OSCR-4 navigation system and augmented reality with BIM networked controller. (\$35,000)

2013 **Techne Grant:** University of Buffalo, Grant for augmented construction research. (\$5,000)

2013 **New York State Council on the Arts Grant:** Grant for construction site co-robotics research. (\$ 10,000)

2012 **Immersive Learning Grant:** Ball State University, Grant for the Self-Driving Tower Project's social media interface, (\$ 5,000)

2010 **AIA Upjohn Research Initiative:** Grant to develop applications for bio-composites using CNC fiber placement technology (\$ 35,000)

2009 **ISS Grant Cornell University:** Institute for the Social Sciences, book grant for "XXL-XS: New Directions in Ecological Design" (\$ 10,000)

2008 **BSA Research Grant:** Boston Society of Architects, grant to develop Fibershop Ver 1.0 software. (\$ 40,000)

2007 **New York State Council on the Arts Grant:** Grant for the development of a fiber placed long-span truss. (\$ 10,000)

- 2006** **Pratt Faculty Development Fund:** Grant for field-testing AutomasonMP3 in Dhaka, Bangladesh. (\$3,000)
- 2006** **BSA Research Grant:** Boston Society of Architects, grant to develop AutomasonMP3, a new method for constructing complex masonry walls using a digital music player. (\$40,000)
- 2005** **International Masonry Institute Research Funding:** Grant to develop AutomasonMP3 with software engineer Yee Peng Chia, Eric Maslowski and Chipp Jansen, (\$10,000)
- 2004** **Graham Foundation:** Grant for “Programming Cultures: Art and Architecture in the Age of Software” (\$10,000)
- 2001** **Graham Foundation:** Grant for “Mapping in the Age of Digital Media” (\$10,000)
- 1999** **New York State Council on the Arts Grant:** Grant for research into smart glass technologies. (\$10,000)

Books

- 2017** **XXL-XS:** New Directions in Ecological Design, edited by Mike Silver and Mitchel Joachim, ACTAR Books, Barcelona, Spain, 2016.
- 2006** **Programming Cultures:** Architecture, Art and Science in the Age of Software, Edited by Mike Silver, AD Magazine, Wiley/Academy, London, United Kingdom, 2006.
- 2003** **Mapping in the Age of Digital Media:** The Yale Symposium, Edited by Mike Silver, Assistant editor Diana Balmori, Wiley/Academy, London, United Kingdom 2003.
- 1996** **Pamphlet Architecture: #19-Reading/Drawing/Building,** Project Monograph by Mike Silver, with an introduction by Stan Allen, Princeton Architectural Press, New York, NY, 1996.

Refereed Essays

- 2020** **Empty Figures,** Pidgin 28, Princeton University School of Architecture, 2020, Pp. 250-257.
- 2017** **Rise of the Servant Zombies,** from *Towards a Robotic Architecture*, edited by Mahesh Daas and Andrew Wit, Gordon Goff, California, 2018, Pp. 250-257.

- 2017** **Skin Deep/Close Fit:** from *The LeFevre Fellowship: 2000-2017*, edited by Benjamin Wilke, Applied Research+Design Publishing, San Francisco, California, 2017, Pp. 10-14.
- 2013** **Peripatetic Assemblies:** Architecture, Co-robotics and Machine Vision, from *Fabricate 2014*, edited by Fabio Gramazio and Matthias Kohler, gta Verlag, Zurich, Switzerland, 2014, Pp. 242-247.
- 2013** **Beyond the New Materialism,** from *Performative Materials in Architectural Design*, edited by Rashida NG and Sneha Patel, University of Chicago Press, Chicago, Illinois, 2013, Pp. 214-215.
- 2011** **Many from One,** *LOG 23*, Edited by Cynthia Davidson, Any Corporation, Fall Edition, New York, NY, 2011, Pp. 30-33.
- 2015** **(Un)Building Codes:** Architecture and the Limits of Artificial Intelligence, from *ACADIA Conference*, Cincinnati, Ohio, 2015. Pp. 26-28.
- 2009** **Pattern Deposition:** from Scripts to Applications, from *The Patterns of Architecture*, edited by Mark Garcia, AD Magazine, Vol. 79, No. 6, Wiley/Academy, London, United Kingdom, 2009, Pp. 94-99.
- 2009** **(Dis)appearing Time,** from *Ineffable*, edited by Bradley Horn, Oscar Riera Ojeda Publishers, Philadelphia, Pennsylvania, 2012, Pp. 18-25.
- 2008** **Matter-Information** from *Autogenic Structures*, edited by Evan Douglas, Taylor& Francis, United Kingdom, 2008, Pp. 18-25.
- 2006** **Transmitting Iconography:** from *Else/Where: Mapping: New Cartographies of Networks and Territories*, edited by Janet Abrams and Peter Hall, University of Minnesota Press, Minneapolis, Minnesota, 2006, Pp. 206-211.
- 2003** **Literal Transparency and the Engines of Logic:** from *Diversifying Digital Architecture*, edited by Yu-Tung Lui, Birkhauser, Berlin, 2003, Pp-97-101.
- 2002** **Towards a Post-Proportional Ergonomics:** The Endless Chair Project, from *JAE, Journal of Architectural Education*, Vol. 56, Issue 2, 2002, Pp. 23-26.
- 1999** **Scanned Body/Metal Curtain:** Beyond Gender Dimorphism in Architecture, from *Dimensions: Journal of the College of Architecture + Urban Planning University of Michigan*, Vol. 13, edited by Carla Swickerath, University of Michigan, 1999, pp. 198-203.
Project Profiles

- 2020** **How an Architecture Faculty Leveraged 3D Printing to Enhance Virtual Classes**, from *Formlabs Website*.
- 2020** **Race and Automation:** An Interview with Prof. Henry Louis Taylor, Department of Urban and Regional Planning, The University at Buffalo. (in-progress)
- 2016** **Mr. Robot**, from *Metropolis Magazine*, Matthew Shen Goodman, April 2016, Pp. 82-89. (Featured work of leg-based construction site co-robotics.)
- 2010** **Simulate**, from *Form+Code in Design, Art and Architecture*, Edited by Casey Reas and Chandler McWilliams, Princeton Architectural Press, New York, 2010, P-65. (Features work on San Jose State University Museum of Art and Design Competition.)
- 2009** **Sanders Fellowship: 2004-05** from *Fellowships in Architecture*, foreword by Monica Ponce de Leon, ORO editions, CA, 2009, Pp. 128-131. (Featured Long Span S-glass Truss and Alamgir Office Block, Dhaka, Bangladesh.)
- 2008** **Freer Masons:** from *Metropolis Magazine*, Suzanne LaBarre, January, 2009, P-141. (Featured work on AutomasonMP3 Software.)
- 2007** **Brilliant Simplicity**, from *Metropolis Magazine*, documentary film produced by Susan Szenasy, 2007. (Featured composite fiber placement research with Automated Dynamics and Raphael Vinoly Architects.)
- 2004** **Manufacturing Material Effects** from *Manufacturing Material Effects*, edited by Branko Kolarevic and Kevin Klinger, Routledge, NY, 2008, P-9. (Featured Switchable Glass House Project.)
- 2004** **The Blueprint Redefined:** New Technological Paradigms in Architecture, Brian Wayda, *Yale Scientific*, Yale University, New Haven, Vol. 22, No. 3, 2004, Pp. 12-14. (Featured the Drowning Bridge and the Baptistry of Mont St. Michel.)
- 2002** **Cartography in the Age of Digital Media:** from *Constructs Magazine* Brendan Hookway, Yale University School of Architecture, New Haven, 2002, P-2. (Review of Digital Cartography Symposium at Yale)
- 2002** **DFC: Experiments with New Robotic Construction Technologies at Yale:** from *Constructs Magazine*, Nina Rapparport, Yale University

School of Architecture, New Haven, 2002, P-3. (Featured work on CNC foam cutting.)

- 2001** **Silver Appointed Head of Digital Media**, from *Constructs Magazine*, Nina Rapparport, Yale University School of Architecture, New Haven, 2002, P-2.
- 2000** **Visions of Space: Four Architects Shape the New York Landscape**, Noit Banai, *NYFA, FYI*, Winter,2000, P-3. (Featured work on digital cartography.)
- 2000** **Moving Glass/Digital Stone**, from *New Flatness: Surface Tension in Digital Architecture*, edited by Alicia Imperiali, Birkhauser Additions, Berlin, 2000, Pp. 54-55. (Feature work on digital stone cutting and smart glass.)
- 1999** **Silver Works: A+U: Architecture and Urbanism**, Peggy Deamer, Vol. 349, 1999, Pp. 102-103. (Featured work on the Liquid Crystal Glass House)
- 1998** **Drowning Bridges** from *Nagoya Design Journal: New Neighbors*, Mike Silver, International Design Competition, Nagoya City, Japan 1998, P.9.
- 1996** **The Reading Room Project** from *Newsline*, Columbia University School of Architecture, May/Summer, 1996, p.9.
- 1992** **The Tomb** from *On Making*, Pratt Journal of Architecture, edited by Dan Bucsescu, Volume III, 1994. Pp. 111-114
- 1988** **Baptistry of St. Agnes**, from *Form, Being and Absence*, Pratt Journal of Architecture, Edited By Caleb Crawford and Alan Cohl, Volume. II, 1989.
- 1986** **SOFA Project**, School for the Fine Arts from *Ubiquitous Magazine*, Pratt Institute School of Art, 1986, p.3.

Juried Exhibitions

- 2019** **Design Exhibition**, Group Show, Community Gallery, Downtown Arts Center, Lexington Kentucky.
- 2011** **Elsewhere Envisioned**, NYU Global Design Show and Symposium: Exhibit of s-glass truss and prototype house.
- 2010** **FAB Lab abQ**: Exhibit of recent work with advanced composite fabrication robotics, Fab Lab abQ Gallery, Albuquerque, NM.

- 2007** **Temporalism Show:** Cornell University School of Architecture, Manhattan Gallery, New York.
- 2006** **Emerging Talents / Emerging Technologies:** Architecture Biennial, Beijing, China.
- 2004** **Metropolis Exhibit:** AutomasonMP3, Furniture Fair Lecture, New York, NY.
- 2004** **Armory Show:** Foamfit Series, Leslie+Cohen Gallery, New York. N.Y.
- 2003** **The New Museum of Contemporary Art:** Zenith Media Lounge, Group Show, Liquid Crystal Glass House, New York.
- 2003** **San Jose State University Museum of Art and Design,** Competition, Group Show, San Jose, California.
- 2003** **National Building Museum:** Pentagon Memorial Competition Exhibit, Washington, DC.
- 2001** **Foam Work Show:** Ohio State University School of Architecture Gallery, Columbus, Ohio.
- 1999** **Cooper-Hewitt National Design Museum:** A Presentation of Recent Work at the Museum, New York, NY.
- 1998** **Nagoya Design Exhibition:** Grand Prize- “Drowning Bridges”, Group Show, Nagoya, Japan.
- 1997** **Transarchitecture Exhibition:** (Group Show) “The Torn Glass Curtain”, project, Columbia University, New York, NY.
- 1995** **Next Wave Exhibition,** Drowning Bridges, Group Show, Nagoya, Japan.
- 1994** **Architecture League:** Time, Young Architects Exhibition, Group Show, New York, NY.
- 1990** **End of the Year Student Show,** Columbia University, Buell Hall, New York.
- 1986** **Annual Exhibition of Young Architects,** Skidmore, Owings and Merrill, Group Show, New York, NY.
- 1985** **Architecture Drawing Show,** Doma Gallery, New York, NY.

Public Presentations

- 2020** **Construction Site Automation**, ZOOM Lecture for International Masonry Institute.
- 2016** **Co-Robotics, Composites and High-performance Computing:** Lecture at the Bartlett School, London.
- 2015** **Designed Matter Symposium**, Department of Architecture, with Prof. Carla Lietao, University of Buffalo.
- 2015** **Disciplinary Centrism Conference**, ACSA Presentation on recent research.
- 2014** **Advanced Composite Construction:** Lecture on Upjohn research, AIA National Convention, Chicago, IL.
- 2014** **Automating On-Site Construction:** Lecture on advanced robotics, Masonry Contractors Association Conference, Baltimore, MD.
- 2013** **Leg-Based Robotics**, Speaker on construction site automation for the American Association of Masonry Contractors, Washington, D.C.
- 2009** **Recent Work:** Lecture on advanced robotic fiber placement research, AA, London.
- 2009** **Middle Apps: The Architect as Software Developer:** Lecture at the IaAC, Barcelona, Spain.
- 2009** **CITA Conference:** Participant, Royal Academy of Fine Arts, School of Architecture, Copenhagen, Denmark.
- 2004** **Ineffable Conference:** Participant, City College School of Architecture, New York, NY.
- 2005** **Universal Machines Symposium:** Event organizer with Stephen Wolfram, Pratt Institute School of Architecture, New York, NY.
- 2004** **Sustainable Manufacturing Colloquium:** Digital Media Advisory Committee, Columbia University, School of Architecture, New York, NY.
- 2004** **NSP Conference:** M.I.T. School of Architecture, Boston, MA.
- 2004** **Recent Work:** Lunchtime Lecture, M.I.T. School of Architecture, Boston, MA.

- 2004** **AutomasonMP3:** Design Informatics, GSD Harvard University School of Architecture, Boston, MA.
- 2004** **Complexity for Free:** lecture on recent work, Pratt Institute School of Architecture, Brooklyn, NY.
- 2002** **Mapping in the Age of Digital Media:** The Yale Symposium
Event Organizer and Moderator, Yale University School of Architecture,
New Haven, CT.
- 2001** **Extra-digital-10 Sites:** Yale University School of Architecture, New
Haven, CT.
- 2000** **High Throughput Simulation and Building Design:** Lecture on
recent work, Rensselaer Polytechnic Institute, Troy, NY.
- 2000** **Same But Different:** Lecture on the Liquid Crystal Glass House,
Knowlton School of Architecture, Ohio State University, Columbus, OH.
- 2000** **Towards a Soft Cartography:** “Digital Mapping and Architecture”
lecture on recent work, Pratt Institute School of Architecture, Brooklyn,
NY.
- 2000** **Data Cloud:** From LIDAR to Robotics: “Informed Terrain” lecture series,
lecturer and program organizer Parsons School of Design, New York, NY.
- 1998** **Non-Conceptual Architecture:** Lecture at The Ecole de Beaux Arts, Paris.

Biography: Mike Silver, Critical Systems, NYC

My work straddles the lines between architecture, engineering and industrial design. I hold a Master of Building Science from Columbia University and a BA from Pratt Institute. Between 1999 and 2018, I directed the digital media program at the Yale School of Architecture, taught studios at Harvard, co-founded the center for Sustainable Manufacturing and Advanced Robotic Technologies (SMART) at the University of Buffalo and became the first LeFevre' 29 research fellow at the Knowlton School of Architecture. I am also the author of several books exploring the relationship between technology and contemporary practice including "Pamphlet Architecture #19", AD's, "Programming Cultures", "Mapping in the Age of Digital Media" and "XXL-XS: New Directions in Ecological Design" co-edited with Mitchel Joachim. I built my first working robot out of Scotch tape and Spirograph parts at the age of 14.

In 2003 with software engineer, Yee Peng Chia, I co-founded Critical Systems, a minority owned, multidisciplinary design incubator based at the Brooklyn Navy Yard. Through collaborations with computer scientists, mathematicians and process engineers our studio works at a variety of scales and has extensive experience in the production of sculpture, furniture, interiors, consumer products and buildings. The work of Critical Systems has received generous support from a wide range of organizations including: the Institute for Social Studies at Cornell, Pratt's faculty development program, and the National Science Foundation. (NSF) Today, we continue innovative research in the fields of sustainable design, software engineering, computer-aided manufacturing, artificial intelligence, high-performance computing and leg-based co-robotics. As an experimental practice our firm is committed to the precise alignment of critical theory, ecological thinking, craft and construction. Critical Systems received an R+D Award from Architecture Magazine in 2015, an Upjohn Research grant in 2010, a NYFA Fellowship in 1999, two project awards from the Boston Society of Architects, a Graham Foundation grant in 2004 and a U.S. patent for advanced fiber-placed structures in 2016. The work of Critical Systems has been exhibited at the New Museum of Contemporary Art, in Manhattan, the IDC in Nagoya, Japan, the National Building Museum in Washington, D.C., the Architecture League in New York and the Cooper-Hewitt National Design Museum.