

Shani Sharif

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EDUCATION

- Jan 2011-present **Georgia Institute of Technology**, School of Architecture, Atlanta, GA
PhD student in Architecture, Design Computation

Major: Design Computation, Digital Fabrication
Advisors: Prof. T. Russell Gentry (Architecture, Civil Eng.), Prof. Chuck Eastman (Architecture, Computer Science)
Minor: Computer Science, Cognitive Science
Advisor: Prof. Nancy Nersessian (Cognitive Science, School of Interactive Computing)
Research Topic: Investigating the intermediary role of digital fabrication machines in changing the discourse of design cognition in relation to the action of making
- 2008 - 2010 **Massachusetts Institute of Technology**, Department of Architecture, Cambridge, MA
Master of Science in Architectural Studies (SMArchS), Design and Computation
Thesis co-advisors: Prof. Terry Knight, Prof. Lawrence Sass
- 2004 - 2007 **Shahid Beheshti University**, Department of Architecture and Urbanism, Tehran, Iran
Master of Architecture (M.Arch)
- 1999 - 2004 **University of Tehran**, Department of Fine Arts, Tehran, Iran
Bachelor of Architecture (BArch)

RESEARCH INTERESTS

Design computing, digital fabrication, cognitive science and design cognition, Building Information Modeling (BIM)

ACADEMIC AND PROFESSIONAL EXPERIENCE

- Jan. 2014 – Present **Georgia Institute of Technology**, Atlanta, GA
Building Information Modeling for Masonry (BIM-M), Digital Building Laboratory
Research Assistant
Worked with Prof. Russell Gentry (PI)
 - Researched on the development of Building Information Modeling for Masonry
 - Collaborated in the development of a data structure as part of the Masonry Unit Database to capture all the required data for digital representation of masonry units
 - Acquired Entity-Relationship (ER) data model, and MySQL database management system
 - This database is used as part of future BIM software applications and would be used for selection, specification and purchase of masonry units by AEC industries in building projects
- Aug. 2013 – Dec. 2013 **Georgia Institute of Technology**, Atlanta, GA
Instructor
Course: “Construction Materials, Systems and Fabrication” Fall 2013
 - Taught architecture graduate students fundamentals of digital fabrication techniques and machinery, and construction material properties and processing, in accordance with design requirements
 - Instructed the operation and application of digital fabrication machines, including: CNC router, water jet cutter, plasma cutter, laser cutter, wire cutter
 - Taught the use of high-level CAD/CAM software for development of fabrication models and fabrication adjustments
- Aug. 2012 – Dec. 2013 **Georgia Institute of Technology**, Atlanta, GA
Semantic Exchange Modules (SEM), Digital Building Laboratory
Research Assistant
Worked with Prof. Chuck Eastman (PI)
 - Developed an online platform for specification of Semantic Exchange Modules (SEM) for Building Information Modeling (BIM) applications
 - Acquired Microsoft Visual Studio, C#, .NET framework and MySQL database management system
 - SEM is a new framework for composing model views based on object-oriented, testable and reusable modules of information, used for specifying information exchanges between software applications using Industry Foundation Class (IFC) schema.

- May 2012 – **Georgia Institute of Technology, Atlanta, GA**
 Aug. 2012 **Building Information Modeling for Masonry (BIM-M), Digital Building Laboratory**
 Research Assistant
 Worked with Prof. Russell Gentry (PI)
 - Gathered data and performed survey analysis for the Building Information Modeling for Masonry Initiative
- Jan. 2011 – **Wentworth Institute of Technology, Boston, MA**
 Aug. 2011 **Adjunct Professor**
Spring 2011
 - Designed, constructed the syllabus for, and taught the special topic course “GeoMatter”, focusing on the integrated role of geometry and material properties in the process of design and fabrication
 - Developed the course for both graduate and senior undergraduate level architecture students
 - Constructed the lectures and class projects based on an interactive teaching and learning strategy
Summer 2011
 - Taught the 3rd year undergraduate architecture studio
 - Focused the design studio on an one-to-one teaching and learning strategy
Thesis supervision
 - Secondary thesis advisor for Vannesa Rubino MArch thesis (2011), “The Spatial Possibilities of Linearity”
- 2011 **Graduate Student Teaching Certificate**
 Summer (Certified by the Dean for Graduate Education and the Dean for Undergraduate Education)
 The passed workshops included:
 - Introduction to Research on How People Learn
 - Designing a Course and Constructing a Syllabus
 - Constructing Effective Problem Sets and Exam Questions
 - Planning and Presenting a Lecture
 - Interactive Teaching and Active Learning
 - Teaching in a Multicultural Classroom
 - Developing a Teaching Philosophy Statement
- Oct. 2010 – **Massachusetts Institute of Technology, Cambridge, MA**
 Aug. 2011 **Making the Clean Energy City in China, Department of Urban Studies and Planning**
 Research Fellow
 Worked with Prof. Dennis Frenchman and Prof. Christopher Zengras
 - Performed research on the effects of sun and wind, based on urban form, on the energy use of neighborhood-scale urban clusters
- Sep. 2010 – **Massachusetts Institute of Technology, Cambridge, MA**
 Feb. 2011 **Mobile Experience Laboratory, Media Lab (<http://mobile.mit.edu/>)**
 Research Assistant
 Worked with Prof. Federico Casalegno
 - Collaborated on the Green Home Alliance project
 - Developed the design and digital fabrication of the zero energy house model
- 2009 - 2010 **Massachusetts Institute of Technology, Cambridge, MA**
ArchNet, the Aga Khan Trust for Culture (<https://archnet.org/>)
 Research Assistant
 - Performed research and authored descriptive documents on historic sites and monuments for the ArchNet Digital Library
 - Edited and developed Maria-Therese Ullens’ historic documentary videos and photos of the Middle East for the ArchNet Visual Collection
- 2008 - 2009 **Massachusetts Institute of Technology, Cambridge, MA**
Digital Design and Fabrication Group, School of Architecture and Planning
 Research Assistant
 Work with Prof. Lawrence Sass
 - Performed research on automated fabrication systems in industry and architecture
 - Designed and 3D modeled a two story wooden structure house with all the assembly parts for a digital fabrication system
 - Designed five models and fabricated mockups with a friction-joint system for the wall structure of a greenhouse

- 2006 - 2008 **Design Core [4s] Architects, Tehran, Iran**
 Project Architect
 Projects:
 - Kishware Computer Company Headquarter Office, Isfahan, Iran
 - Kishware Computer Company Headquarter Office, Tehran, Iran
 - Damavand Residential Complex, Tehran, Iran
- 2005 - 2006 **Atec Consultants, Tehran, Iran**
 Project Architect
 Projects:
 - Office and Shopping Center, Mashhad, Iran
 - Sustainable Residential and Office Complex Competition, Yazd, Iran
- 2003 - 2004 **Ayandeh Saaz Architecture Technical High school, Tehran, Iran**
 Instructor
 - Taught Building Installations and Surveying to senior high school students

HONORS AND AWARDS

- 2015 **Anne Robinson Clough International Student Fellowship, Georgia Tech**
 Awarded funding for conference participation and presentation: CAADRIA 2015, Korea
- 2010 **MIT Council for the Arts Grant Recipient, MIT**
 Awarded funding for an independent project on a bio-inspired interactive origami design, fabrication and installation
- 2008 **The Department of Architecture Graduate Fellowship, MIT**
 Fellowship for tuition and stipend for the 2008-09 and 2009-10 academic years
- 2003 **Ranked 1st in the national university entrance exam for graduate studies, Iran**
 Master of landscape architecture
- 2003 **Ranked 3rd in the national university entrance exam for graduate studies, Iran**
 Master of architecture

PUBLICATIONS

- Sharif, Shani; Gentry, Russll (2015). *BIM for Masonry: Development of BIM Plugins for the Masonry Unit Database*. Paper presented at the Real Time - Proceedings of the 33rd Education and Research in Computer Aided Architectural Design in Europe Conference (eCAADe 2015), Vienna, Austria
http://cumin cad.scix.net/cgi-bin/works/Show?_id=ecaade2015_261
- Sharif, Shani; Gentry, Russell (2015). *Design Cognition Shift from Craftsman to Digital Maker*. Paper presented at the Emerging Experience in Past, Present and Future of Digital Architecture, Proceedings of the 20th International Conference of the Association for Computer-Aided Architectural Design Research in Asia (CAADRIA 2015), Daegu, Korea.
http://cumin cad.scix.net/cgi-bin/works/Show?_id=caadria2015_208
- Sharif, Shani; Gentry, Russell; Eastman, Chuck; Elder, Jeff. (2015). *Masonry Unit Database Development for BIM-Masonry*. Paper presented at 12th North American Masonry Conference, Denver, Colorado.
- Witthuhn, Tyler; Sharif, Shani; Gentry, Russell; Elder, Jeff. (2014). *Masonry Product Models for Building Information Modeling*. Paper presented at 9th International Masonry Conference, Guimarães, Portugal.
- Sharif, Shani. (2013). *Material Cognition: Designer's Perception Of Material in a Creative Design Process*. Paper presented at the 17th Conference of the Sociedad Iberoamericana de Gráfica Digital Conference (SiGraDi 2013), Valparaiso, Chile.
http://cumin cad.scix.net/cgi-bin/works/Show?_id=sigradi2013_429
- Sharif, Shani; Gentry, T Russell, Yen, Jeannette, & Goodman, Joseph N. (2013). *Transformative Solar Panels: A Multidisciplinary Approach*. International Journal of Architectural Computing, 11(2), 227-246. <http://multi-science.atypon.com/doi/abs/10.1260/1478-0771.11.2.227>
- Sharif, Shani; Gentry, T Russell, Yen, Jeannette, & Goodman, Joseph N. (2012). *Kinetic Solar Panels: A Transformative and Expandable Geometric System for Photovoltaic Structures*. Paper presented at the 16th Conference of the Sociedad Iberoamericana de Gráfica Digital Conference (SiGraDi 2012), Fortaleza, Brasil. http://cumin cad.scix.net/cgi-bin/works/Show?sigradi2012_187
- Sharif, Shani; Demaine, Martin. (2011) *Interactive Blossoms.* In *Proceedings of the Fifth International Conference on Tangible, Embedded, and Embodied interaction, TEI'11, Work in Progress Section, Funchal, Portugal*. <http://www.tei-conf.org/11/TEI-WIP-final-compressed.pdf>

Sharif, Shani. (2010). *The Confluence of Digital Design/Fabrication and Biological Principles: Systematic knowledge transfer for the development of integrated architectural systems. (Master's)*, Massachusetts Institute of Technology. <http://dspace.mit.edu/handle/1721.1/61560>

REVIEWS

Automation in Construction Journal (2014) – Reviewer

SIGraDi (The Iberoamerican Society of Digital Graphics) Conference 2014 – Reviewer

SIGraDi (The Iberoamerican Society of Digital Graphics) Conference 2013 – Reviewer

SKILLS

Computer

Programming and scripting: Java, C#, Python, SQL, ASP.NET, Matlab, Rhino Script, Processing, Arduino, MEL, Visual Studio

Modeling: Revit, Solidworks, AutoCAD, Rhinoceros, 3D Max, Grasshopper

Graphic and video editing: Adobe Photoshop, Adobe illustrator, Final Cut Pro, MS Office

Digital Fabrication

CNC, water-jet cutter, plasma cutter, laser cutter, 3D printer

Language

English (Fluent), Persian (Native)