

# EMILY WHITING

Boston University  
Center for Computing & Data Sciences  
Computer Science Department  
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<https://shape.bu.edu/>

## EDUCATION HISTORY

- Ph.D. 2012 **Massachusetts Institute of Technology**  
Computer Graphics & Building Technology  
Thesis Advisors: Prof. John Ochsendorf, Prof. Frédo Durand  
*MIT Presidential Fellow*
- S.M. 2006 **Massachusetts Institute of Technology**  
Design & Computation, Department of Architecture  
Thesis Advisors: Prof. Seth Teller, Prof. Takehiko Nagakura  
*Awarded Thesis Prize*
- B.A.Sc. 2004 **University of Toronto**  
Engineering Science (with Honors), Faculty of Applied Science and Engineering  
Thesis Advisors: Dr. Sabry El-Hakim, Prof. Demetri Terzopoulos

## ACADEMIC POSITIONS

- 2021 – present **Boston University**, Associate Professor  
Department of Computer Science, College of Arts & Sciences
- 2022 – 2023 **University of Washington**, Visiting Scholar  
Department of Human Centered Design & Engineering, College of Engineering  
Paul G. Allen School of Computer Science & Engineering
- 2017 – 2021 **Boston University**, Assistant Professor, *Innovation Career Development Professorship*  
Department of Computer Science, College of Arts & Sciences
- 2017 – 2021 **Dartmouth College**, Adjunct Assistant Professor  
Department of Computer Science, Faculty of Arts & Sciences
- 2014 – 2017 **Dartmouth College**, Assistant Professor  
Department of Computer Science, Faculty of Arts & Sciences
- 2011 – 2014 **ETH Zurich**, Postdoctoral Fellow, *ETH Zurich/Marie Curie Cofund Fellow*  
Interactive Geometry Lab, Institute of Visual Computing

## HONORS & AWARDS

- 2021 NSF CAREER Award
- 2019 – 2021 Sloan Research Fellow, Alfred P. Sloan Foundation
- 2020 Best Paper Honorable Mention, ACM CHI 2020
- 2020 Best Paper, 8<sup>th</sup> Intl. Conference on Culture & Computing
- 2017 – 2020 Innovation Career Development Professor, Boston University
- 2012 – 2014 ETH Zurich Postdoctoral Fellowship / Marie Curie COFUND Program
- 2008 – 2010 Doctoral Scholarship, Natural Sciences & Engineering Research Council of Canada (NSERC)
- 2007 Best Paper Presentation, Computer Aided Architectural Design (CAAD) Futures
- 2006 MIT Ph.D. Presidential Fellowship
- 2006 Master's Thesis Prize, MIT Department of Architecture
- 2004 – 2006 Graduate Fellowship, MIT Department of Architecture
- 2001 – 2004 Women in Engineering and Science Scholarship, National Research Council of Canada

**GRANTS & OTHER FUNDING**

- 2021 – 2026 National Science Foundation (NSF). \$516,782  
*CAREER: Geometry and Mechanics of Textile-Based Structural Design*  
 Sole PI. Award #2047342.
- 2020 – 2023 Department of Defense, U.S. Army CCDC Soldier Center. \$360,000  
*Design of Helmet Pad Structures using Autonomous Experimental Research*  
 Co-PI with Keith Brown.
- 2022 Adobe Systems Gift. \$17,500
- 2019 – 2021 Sloan Research Fellowship. \$70,000
- 2018 – 2021 National Science Foundation (NSF). \$498,431 (\$166,600 awarded to BU)  
*Robust Intelligence (RI): Small: Collaborative Research: Computational Joinery*  
 Co-PI with Devin Balkcom, Weifu Wang. Award #1813319.
- 2018 – 2020 BU Hariri Institute Research Incubation Award. \$50,494  
*Data-Driven Design of Tough 3D Printed Structures*  
 Lead PI with Co-PIs Keith Brown, Elise Morgan.
- 2017 – 2020 BU Innovation Career Development Professorship. \$107,511
- 2015 – 2018 National Science Foundation (NSF): Research Initiation Initiative (CRII). \$174,999  
*Cyber-Human Systems (CHS): Structurally-Aware Computation for Geometry Acquisition and Design*  
 Sole PI. Award #1755767
- 2016 – 2017 Adobe Systems Gift. \$58,900
- 2016 – 2017 Dartmouth Neukom Institute: CompX Faculty Grant. \$15,000  
*Computational Design of Deployable Structures*  
 Co-PI with Devin Balkcom.

**OTHER PROFESSIONAL PREPARATION**

- |                        |                    |  |
|------------------------|--------------------|--|
| 2010 Summer            | R&D Intern         | Lucasfilm Industrial Light & Magic, San Francisco, USA   |
| 2008 – 2011            | Research Assistant | MIT, Department of Computer Science, Cambridge, USA<br>Computer Graphics Group   |
| 2007 – 2008            | Teaching Assistant | MIT, Cambridge, USA<br>Courses: Basic Structural Design, Introduction to Computer Graphics   |
| 2006 – 2007            | Research Assistant | MIT, Department of Architecture, Cambridge, USA<br><i>MIT Presidential Fellowship</i>  |
| 2004 – 2006            | Research Assistant | MIT, Department of Computer Science, Cambridge, USA<br>Robotics, Vision & Sensor Networks Group  |
| 2002 – 2003            | Junior Designer    | Yolles Partnership Inc., Toronto, Canada<br>Structural Engineering Division  |
| 2001 – 2004<br>Summers | Research Intern    | National Research Council of Canada, Ottawa, Canada<br>Visual Information Technology Group<br><i>Women in Engineering and Science Fellow</i> |

**PUBLICATIONS**

Shape Lab: <https://shape.bu.edu/publications>

Google Scholar: <https://scholar.google.com/citations?user=TU9kGYAAAAJ&hl=en>

**Papers**

- [1] Designing Lattices for Impact Protection using Transfer Learning  
 A. Gongora, K. Snapp, R. Pang, T. Tian, K. Reyes, E. Whiting, T. Lawton, E. Morgan, K. Brown  
 Matter, 2022

- [2] Designing Composites with Target Effective Young's Modulus using Reinforcement Learning  
A. Gongora, S. Mysore, B. Li, W. Shou, W. Matusik, E. Morgan, K. Brown, E. Whiting  
ACM Symposium on Computational Fabrication (SCF), 2021
- [3] Knitting 4D Garments with Elasticity Controlled for Body Motion  
Z. Liu, X. Han, Y. Zhang, X. Chen, Y. Lai, E.L. Doubrovski, E. Whiting, C.C.L. Wang  
ACM Transactions on Graphics, 2021 (ACM SIGGRAPH 2021 Issue)
- [4] Using Simulation to Accelerate Autonomous Experimentation: A Case Study using Mechanics  
A. Gongora, K. Snapp, E. Whiting, P. Riley, K. Reyes, E. Morgan, K. Brown  
iScience, Vol. 24, Issue 4, April 2021
- [5] Falling Into Place: Drop Assembly of Interlocking Puzzles  
A. Sniffen, Z. Sun, S. Lensgraf, E. Whiting, A.Q. Li, D. Balkcom  
Robotics: Science and Systems, 2021
- [6] Augmented Reality for Sculpture Stability Analysis and Conservation  
D. Henneman, Y. Li, J. Ochsendorf, M. Betke, and E. Whiting  
Eurographics Workshop on Graphics and Cultural Heritage, 2020
- [7] Tactile Line Drawings for Improved Shape Understanding in Blind and Visually Impaired Users  
A. Panotopoulou, X. Zhang, T. Qiu, X.-D. Yang, and E. Whiting.  
ACM Transactions on Graphics, 2020 (ACM SIGGRAPH 2020 Issue)
- [8] PuzzleFlex: Kinematic Motion of Chains with Loose Joints  
S. Lensgraf, K. Itani, Y. Zhang, Z. Sun, Y. Wu, A.Q. Li, B. Zhu, E. Whiting, W. Wang and D. Balkcom.  
Intl Conference on Robotics and Automation (ICRA), 2020
- [9] TangibleCircuits: An Interactive 3D Printed Circuit Education Tool for People with Visual Impairments  
J.U. Davis, T.-Y. Wu, B. Shi, H. Lui, A. Panotopoulou, E. Whiting, and X.-D. Yang.  
ACM CHI Conference on Human Factors in Computing Systems (CHI), 2020  
**Awarded Best Paper Honorable Mention at CHI 2020 (top 5% of submissions)**
- [10] Computational Design of Fabric Formwork  
X. Zhang, G. Fang, M. Skouras, G. Gieseler, C.C.L. Wang and E. Whiting.  
ACM Transactions on Graphics, 2019 (ACM SIGGRAPH 2019 Issue)
- [11] Watercolor Woodblock Printing with Image Analysis  
A. Panotopoulou, S. Paris and E. Whiting.  
Computer Graphics Forum, 2018 (Eurographics 2018 Issue)
- [12] Assembling and Disassembling Planar Structures with Divisible and Atomic Components  
Y. Zhang, E. Whiting and D. Balkcom.  
IEEE Transactions on Automation Science and Engineering, 2018
- [13] Thermal-Comfort Design of Personalized Casts  
X. Zhang, G. Fang, C. Dai, J. Verlinden, J. Wu, E. Whiting and C.C.L. Wang.  
ACM Symposium on User Interface Software and Technology (UIST), 2017
- [14] Environment-Scale Fabrication: Replicating Outdoor Climbing Experiences  
E. Whiting, N. Ouf, L. Makatura, C. Mousas, Z. Shu and L. Kavan.  
ACM CHI Conference on Human Factors in Computing Systems (CHI), 2017
- [15] Spin-It: Optimizing Moment of Inertia for Spinnable Objects  
M. Bäcker, B. Bickel, E. Whiting, and O. Sorkine-Hornung.  
**Communications of the ACM: Research Highlights**, August 2017 (*Reprint of SIGGRAPH 2014 article, with foreword: "Technical perspective: Linking form, function, and fabrication" by H. Pottmann*)
- [16] Assembling and Disassembling Planar Structures with Divisible and Atomic Components  
Y. Zhang, E. Whiting and D. Balkcom.  
Algorithmic Foundations of Robotics (WAFR), 2016

- [17] Printone: Interactive Resonance Simulation for Free-form Print-wind Instrument Design  
N. Umetani, A. Panotopoulou, R. Schmidt and E. Whiting.  
ACM Transactions on Graphics, 2016 (ACM SIGGRAPH Asia 2016 Issue)
- [18] Data-Driven Bending Elasticity Design by Shell Thickness  
X. Zhang, X. Le, Z. Wu, E. Whiting and C.C.L. Wang.  
Computer Graphics Forum, 2016 (Eurographics Symposium on Geometry Processing 2016 Issue)
- [19] Buoyancy Optimization for Computational Fabrication  
L. Wang and E. Whiting.  
Computer Graphics Forum, 2016 (Eurographics 2016 Issue)
- [20] Foldings: A Tool for Interactive Pop-Up Card Design  
N. Harquail, M. Allen and E. Whiting.  
Eurographics Workshop on Graphics for Digital Fabrication, 2016
- [21] Perceptual Models of Preference in 3D Printing Orientation  
X. Zhang, X. Le, A. Panotopoulou, E. Whiting and C.C.L. Wang.  
ACM Transactions on Graphics, 2015 (ACM SIGGRAPH Asia 2015 Issue)
- [22] A 3-D Stability Analysis of Lee Harvey Oswald in the Backyard Photo  
S. Pittala, E. Whiting and H. Farid.  
Journal of Digital Forensics, Security and Law, 2015
- [23] Assembling Self-Supporting Structures  
M. Deuss, D. Panozzo, E. Whiting, Y. Liu, O. Sorkine-Hornung and M. Pauly.  
ACM Transactions on Graphics, 2014 (ACM SIGGRAPH Asia 2014 Issue)
- [24] Spin-It: Optimizing Moment of Inertia for Spinnable Objects  
M. Baecher, E. Whiting, B. Bickel and O. Sorkine-Hornung.  
ACM Transactions on Graphics, 2014 (ACM SIGGRAPH 2014 Issue)
- [25] A Graph-based Approach for Discovery of Stable Deconstruction Sequences  
L. Beyeler, J.-C. Bazin and E. Whiting.  
Advances in Architectural Geometry, 2014
- [26] Make It Stand: Balancing Shapes for 3D Fabrication  
R. Prévost, E. Whiting, S. Lefebvre and O. Sorkine-Hornung.  
ACM Transactions on Graphics, 2013 (ACM SIGGRAPH 2013 Issue)
- [27] Structural Optimization of 3D Masonry Buildings  
E. Whiting, H. Shin, R. Wang, J. Ochsendorf and F. Durand.  
ACM Transactions on Graphics, 2012 (ACM SIGGRAPH Asia 2012 Issue)
- [28] Procedural Modeling of Structurally-Sound Masonry Buildings  
E. Whiting, J. Ochsendorf and F. Durand.  
ACM Transactions on Graphics, 2009 (ACM SIGGRAPH Asia 2009 Issue)
- [29] Detailed 3D Modeling of Castles  
S. El-Hakim, L. Gonzo, F. Voltolini, S. Girardi, A. Rizzi, F. Remondino and E. Whiting.  
Intl. Journal of Architectural Computing (IJAC), 2007
- [30] Topology of Urban Environments  
E. Whiting, J. Battat and S. Teller.  
Computer-Aided Architectural Design (CAAD) Futures, 2007  
**Awarded Best Paper Presentation at CAAD Futures 2007**
- [31] Constrained Planar Remeshing for Architecture  
B. Cutler and E. Whiting.  
Graphics Interface, 2007

- [32] 3D Modeling with Reusable and Integrated Building Blocks  
S. El-Hakim, E. Whiting and L. Gonzo.  
Optical 3D Measurement Techniques, 2005
- [33] A Hierarchical 3D Reconstruction Approach for Documenting Complex Heritage Sites  
S. El-Hakim, J.-A. Beraldin, L. Gonzo, E. Whiting and M. Jemtrud.  
CIPA Intl Symposium, ICOMOS & ISPRS Committee on Documentation of Cultural Heritage, 2005
- [34] Digital Recording of Aboriginal Rock Art  
S. El-Hakim, J. Fryer, M. Picard and E. Whiting.  
Virtual Systems and Multimedia (VSMM), 2004
- [35] Photo-Realistic 3D Reconstruction of Castles with Multiple Sources Image-Based Techniques  
L. Gonzo, S. El-Hakim, M. Picard, S. Girardi and E. Whiting.  
Congress Intl Society for Photogrammetry & Remote Sensing (ISPRS), 2004

### **Courses**

- [36] 3D Printing Oriented Design: Geometry and Optimization  
L. Liu, C.C.L. Wang, A. Shamir and E. Whiting.  
ACM SIGGRAPH Asia, Invited Course, 2014

### **Refereed Abstracts, Posters & Videos**

- [37] Knitting 4D Garments with Elasticity Controlled for Body Motion  
Z. Liu, X. Han, Y. Zhang, X. Chen, Y. Lai, E.L. Doubrovski, E. Whiting, C.C.L. Wang  
ACM Symposium on Computational Fabrication (SCF), Demo & Poster session, 2022
- [38] 3D Virtual Reconstruction and Sound Simulation of an Ancient Roman Brass Musical Instrument  
Z. Sun, A. Rodà, E. Whiting, E. Faresin, and G. Salemi.  
HCI International: 8<sup>th</sup> Intl. Conference on Culture & Computing, 15 pages, July 2020 (*Abstract refereed*)  
**Awarded Best Paper of 8<sup>th</sup> Intl. Conference on Culture & Computing**
- [39] Computational Design of Fabric Formwork  
X. Zhang, G. Fang, M. Skouras, G. Gieseler, C.C.L. Wang and E. Whiting.  
ACM SIGGRAPH, Poster program, 2019 (*Invited from Technical Papers track*)
- [40] Computational Design of Fabric Formwork  
X. Zhang, G. Fang, M. Skouras, G. Gieseler, C.C.L. Wang and E. Whiting.  
ACM Symposium on Computational Fabrication, Poster session, 2019
- [41] Watercolor Woodblock Printing with Image Analysis  
A. Panotopoulou, S. Paris and E. Whiting.  
ACM Symposium on Computational Fabrication, Poster session, 2018.
- [42] Perceptual Models of Preference in 3D Printing Orientation  
X. Zhang, X. Le, A. Panotopoulou, E. Whiting and C. Wang.  
Symposium on Computational Fabrication, Poster session, 2016
- [43] Digital Reconstruction and 4D Presentation through Time  
S. El-Hakim, J.F. Lapointe and E. Whiting.  
ACM SIGGRAPH Technical Sketches, 2008
- [44] Constrained Planar Remeshing for Architecture  
B. Cutler and E. Whiting.  
Eurographics Symposium on Geometry Processing (SGP), Poster session, 2006
- [45] PORTALS  
Directors: S. El-Hakim and M. Picard. Contributed 3D scene modeling.  
ACM SIGGRAPH Video Review Issue 143, Animation Theater Program, 2002

## Other Media

- [46] The Metopes of Selinunte  
Directors: V. Valzano, A. Bandiera and J.A. Beraldin. Contributed 3D animation.  
CD-ROM. Coordinamento SIBA, University of Lecce, 2006 (*e-Science Award Italy*)

## Theses

- [47] Design of Structurally Sound Masonry Buildings Using 3D Static Analysis  
Advisors: John Ochsendorf, Frédo Durand. Ph.D. Thesis, Massachusetts Institute of Technology, 2011
- [48] Geometric, Topological & Semantic Analysis of Multi-Building Floor Plan Data  
Advisors: Seth Teller, Takehiko Nagakura. S.M. Thesis, Massachusetts Institute of Technology, 2006
- [49] Realism in 3D Virtual Spaces: Improving Texture Quality in Image-Based Modeling Systems through Application of High Dynamic Range Imagery  
Advisors: Sabry El-Hakim, Demetri Terzopoulos. B.A.Sc. Thesis, University of Toronto, 2002

## INVITED SPEAKING EVENTS

### Keynotes & Invited Talks: Conferences & Symposia

- 2022 Oct ACM Symposium on Computational Fabrication (SCF). Hosted at University of Washington, Seattle, WA, USA. Keynote Speaker. <https://scf.acm.org/2022/>
- 2021 June Journée IHM IG RV 2021 (Human-Computer Interaction, Computer Graphics and Virtual Reality Day). Hosts: INRIA, CNRS. Keynote Speaker. <https://ihmigrv.afihm.org/>
- 2019 Aug 3D Printing Symposium. Hosted at Dartmouth College, Hanover, NH, USA. Invited Speaker.
- 2019 June International Conference on Geometric Modeling and Processing (GMP). Hosted at Simon Fraser University, Vancouver, Canada. Keynote Speaker.
- 2019 April New England Symposium on Graphics. Hosted at MIT, Cambridge, MA, USA. Invited Speaker.
- 2019 March American Physical Society (APS) March Meeting. Boston, MA, USA. Session: Discrete Structures: Geometry, Mechanics, Graphics, and Computation I. Invited Speaker.
- 2018 May Graphics Interface International Conference. Hosted at York University, Toronto, Canada. Invited Speaker.
- 2014 Nov TEDxBeaconStreet, “3D Printing: the Physics of Objects.” Invited Speaker.  
<https://tedxbeaconstreet.com/speakers/emily-whiting/>

### Workshops, Colloquia, Seminars & Other Events

- 2023 Feb University of Washington, DUB (Design, Use, Build) Seminar. Invited Speaker.  
<https://dub.washington.edu/seminars/2023-02-08.html>
- 2022 Oct University of Washington, Human Centered Design & Engineering Department, Research Seminar. Invited speaker.
- 2022 Sept University of Washington, GRAIL: Graphics and Imaging Laboratory, Annual Retreat. Invited attendee and speaker.
- 2021 Aug Summer Geometry Institute (SGI), MIT. Invited Lecture.
- 2021 July Women in Graphics Research (WiGRAPH) Event, hosted by 2021 Symposium on Geometry Processing. Panelist. <https://www.wigraph.org/events/2021-sgp-wigraph-event/>
- 2020 Feb Autodesk Technology Center Spotlight Series, Boston, MA, USA. Invited Speaker.  
<https://vimeo.com/394452785>
- 2019 Dec MIT Media Lab, Cambridge, MA. Women’s Lunch Series: Invited Speaker.
- 2019 Dec University of Massachusetts Amherst, College of Information and Computer Sciences.
- 2019 July AI4ALL Summer Program, Boston University, USA. Invited Speaker.
- 2019 July New Balance Innovation Studio. Lawrence, MA. Invited Presentation.
- 2019 April Association for Women in Mathematics (AWM) Research Symposium. Hosted at Rice University, Houston, Texas. Invited Workshop Speaker: Women in Shape Modeling Session.

2018 Dec	Tertulia: Junior Faculty Colloquium, BU College of Arts & Science. Invited Speaker.
2018 Dec	Computational Fabrication course, EECS Department, MIT. Guest Lecturer.
2018 May	Fields Institute, Workshop on Robust Geometric Algorithms for Computational Fabrication. Toronto, Canada. Invited attendee and speaker.
2017 Dec	WPI Computer Science Colloquium. Worcester, MA, USA. Invited Speaker.
2017 Oct	McGill University, Computer Science Colloquium. Montreal, Canada. Invited Speaker.
2017 Oct	Tufts University, Electrical and Computer Engineering Seminar Series, co-sponsored by IEEE Education Society. Invited Speaker.
2017 Oct	MIT, Computer Graphics Group Annual Retreat. Invited attendee and speaker.
2017 Sept	Boston University, CS Day: Research Highlights Session. Invited Speaker.
2017 April	Tufts University, Computer Science Colloquium. Invited Speaker.
2016 Sept	MIT, Computer Graphics Group Seminar. Invited Speaker.
2016 May	1 <sup>st</sup> Eurographics Workshop on Graphics for Digital Fabrication. Lisbon, Portugal. Invited Expert Panelist.
2015 Nov	Mount Holyoke College, Computer Science Seminar. Invited Speaker.
2015 Feb	MIT Department of Architecture, Building Technology Lecture Series. Invited Speaker.
2014 Dec	Hong Kong University, Computer Graphics Group Seminar Series. Invited Speaker.
2014 Dec	SIGGRAPH Asia, Course: “ <i>3D Printing Oriented Design: Geometry &amp; Fabrication.</i> ” Invited Course Instructor, “ <i>Structural aspects of geometry design.</i> ” Shenzhen, China.
2014 Dec	Chinese University of Hong Kong, Department of Mechanical and Automation Engineering, Seminar Series. Invited Speaker.
2014 Nov	Wellesley College, Computer Science Department, Seminar Series. Invited Speaker.
2014 Oct	MIT, Computer Graphics Group Annual Retreat. Invited attendee and speaker.
2014 Sept	Schloss Dagstuhl Seminar: Computational Aspects of Fabrication. Wadern, Germany. Invited attendee and speaker.
2013 June	3D Fabrication Summer School, UCL, Center for Virtual Environments, Imaging & Visualization. London, UK. Invited Speaker.
2012 June	Autodesk Research. Toronto, Canada. Invited Talk.
2011 March	PBS NOVA. "The Secret Life of Scientists & Engineers". Featured Scientist, Season 2011, Episode 39. <a href="http://www.pbs.org/video/secret-life-of-scientists-emily-whiting-architectural-engineer/">http://www.pbs.org/video/secret-life-of-scientists-emily-whiting-architectural-engineer/</a>
2010 Aug	R&D Group, Industrial Light & Magic, Lucasfilm Ltd. San Francisco, USA. Invited Talk.
2009 Nov	INRIA Grenoble – Rhône-Alpes Research Center. Montbonnot, France. Invited Talk.
2008 April	American Academy in Rome. New York, USA. Invited Speaker & Panelist.

## COURSES TAUGHT

### **Boston University**, Department of Computer Science

2022 Spring	CAS CS 581: Computational Fabrication
2021 Fall	CAS CS 480: Introduction to Computer Graphics
2020 Spring	CAS CS 581: Computational Fabrication
2019 Fall	CAS CS 480/680: Introduction to Computer Graphics
2019 Spring	CAS CS 581: Computational Fabrication
2018 Fall	CAS CS 480/680: Introduction to Computer Graphics
2018 Spring	CAS CS 591: Computational Fabrication

### **Dartmouth College**, Department of Computer Science

2017 Spring	Maternity Leave
2017 Winter	Maternity Leave
2016 Fall	COSC 89/189: Computational Fabrication

2016 Spring COSC 89/189: Computational Fabrication  
 2016 Winter COSC 98: Senior Design & Implementation Project  
 2015 Fall COSC 77/177: Computer Graphics  
 COSC 98: Senior Design & Implementation Project  
 2015 Spring COSC 77/177: Computer Graphics  
 2014 Fall COSC 89/189: Computational Fabrication

**ETH Zurich,** Department of Computer Science

2012 Fall Seminar, Advanced Topics in Computer Graphics and Vision (Teaching Assistant)  
 2012 Spring Shape Modeling and Geometry Processing (Guest Lecturer)

**MIT,** Department of Architecture

2008 Spring 4.440/4.462 Basic Structural Design (Teaching Assistant)

**MIT,** Department of Computer Science

2007 Fall 6.837 Introduction to Computer Graphics (Teaching Assistant)

**PROFESSIONAL SERVICE**

**Conference Chair**

2021 ACM Symposium on Computational Fabrication 2021, General Chair  
 2020 ACM Symposium on Computational Fabrication 2020, General Chair  
 2018 ACM Symposium on Computational Fabrication 2018, Technical Program Co-Chair

**Program Committees**

2022 ACM UIST'22 Program Committee  
 ACM UIST'22 Best Paper Committee  
 Graphics Interface (GI) 2022 International Program Committee  
 2021 ACM UIST'21 Program Committee  
 2020 ACM SIGGRAPH'20 Conflict of Interest Coordinator  
 Symposium on Solid and Physical Modeling (SPM) 2020 Technical Program Committee  
 Graphics Interface (GI) 2020 International Program Committee  
 2019 ACM SIGGRAPH'19 Technical Papers Committee  
 ACM UIST'19 Program Committee  
 2018 ACM SIGGRAPH'18 Technical Papers Committee  
 Advances in Architectural Geometry Papers Committee  
 2017 Eurographics International Program Committee  
 2016 ACM SIGGRAPH Asia'16 Technical Papers Committee  
 Symposium on Solid and Physical Modeling Program Committee  
 Eurographics Workshop on Graphics for Digital Fabrication Intl Program Committee  
 Advances in Architectural Geometry Papers Committee  
 2015 ACM SIGGRAPH'15 Technical Papers Committee  
 Pacific Graphics International Program Committee  
 2014 ACM SIGGRAPH Asia Courses Committee  
 Graphics Interface Program Committee  
 Advances in Architectural Geometry Papers Committee  
 Pacific Graphics International Program Committee  
 2013 ACM SIGGRAPH General Submissions Committee  
 Pacific Graphics International Program Committee

**Editorial Positions**

2018 – 2022 ACM Transactions on Graphics (ToG), Associate Editor  
 2021 Computers & Graphics: Special Issue on Computational Fabrication, Guest Editor  
 2014 – 2016 The Visual Computer: International Journal of Computer Graphics, Associate Editor



## Technical Papers Reviewer

ACM SIGGRAPH, ACM SIGGRAPH Asia, ACM Transactions on Graphics, ACM UIST, ACM CHI, Computer Graphics Forum, Eurographics, Transactions on Visualization and Computer Graphics, Graphics Interface

## Other Service

- 2022 – present AccessComputing Institutional Partner, Representative of Boston University Computer Science.  
<https://www.washington.edu/accesscomputing/about/partners>
- 2022 Selection Committee for Women in Graphics (WiGRAPH) Rising Stars Program
- 2021 Search Committee for Editor in Chief, ACM Transactions on Graphics (ToG)
- 2016 Oct Dartmouth Thayer School: Visionaries in Technology, Student Poster Competition, Faculty Judge
- 2015 Oct ACM Student Research Competition, Grace Hopper Conference, Jury. Houston, TX, USA
- 2015 Oct HackDartmouth, Judging Panel. Hanover, NH, USA
- 2013 July ACM Student Research Competition, SIGGRAPH, Jury. Anaheim, CA, USA

## UNIVERSITY SERVICE

### Boston University

- 2020 – present BU Arts Council, Office of the Provost
- 2021 – 2022 Search Committee for Professor of the Practice in AI, Department of Computer Science
- 2021 – 2022 Junior Faculty Mentor, Department of Computer Science
- 2022 Spring GRS 697 Graduate Initiation Seminar, Co-Instructor, Department of Computer Science
- 2021 Fall Search Committee for Innovate@BU Executive Director, Office of the Provost
- 2019 – 2020 Faculty Search Committee, Department of Computer Science
- 2018 – 2019 Faculty Search Committee, Department of Computer Science
- 2017 – 2018 PhD Admissions Committee, Department of Computer Science

### Dartmouth College

- 2016 – 2017 Organizing Committee: Grace Hopper Celebration, Dartmouth CS Dept student group  
Schematic Design Committee & CS Committee: Thayer/Computer Science Building Project
- 2015 – 2016 Organizing Committee: Grace Hopper Celebration, Dartmouth CS Dept student group  
Schematic Design Committee & CS Committee: Thayer/Computer Science Building Project  
MS Digital Arts Admissions Committee
- 2014 – 2015 PhD Admissions Committee, Department of Computer Science  
MS Digital Arts Admissions Committee, Department of Computer Science  
Curriculum Committee, Department of Computer Science  
Co-Founded 2-year MS program: Computer Science with a Concentration in Digital Arts

## SELECT PRESS

- 2021 June The Brink. "5 Projects That Push the Limits of Physics, Fabrication Techniques, Algorithm Design" <http://www.bu.edu/articles/2021/5-projects-that-push-the-limits-of-physics-fabrication-techniques-algorithm-design/>
- 2019 Aug The Brink. "Fabric Gives Form to a New DIY Manufacturing Method" <https://www.bu.edu/articles/2019/fabric-formwork-technology/>
- 2019 July Tech Xplore. "PuzzleFlex: Computing the kinematic motion of systems with loose joints" <https://techxplore.com/news/2019-07-puzzleflex-kinematic-motion-loose-joints.html>
- 2019 Feb The Brink. "Q&A with Emily Whiting" <http://www.bu.edu/articles/2019/emily-whiting-awarded-sloan-research-fellowship/>
- 2018 May BU Today. "Taking the Pain out of Painting." <https://www.bu.edu/research/articles/shape-lab-watercolor/>

- 2018 April Outside. "How Two Scientists Will Build Mountains." <https://www.outsideonline.com/2269356/how-two-scientists-will-build-mountains>
- 2017 Nov 3DPrint.com. "Researchers Take Patient Heat Sensitivity Into Account When Developing 3D Printable Orthopedic Cast." <https://3dprint.com/192877/3d-printed-cast-thermal-comfort/>
- 2017 June U.S. News & World Report. "System aims to recreate challenging mountain climbs in gym." <https://www.usnews.com/news/best-states/utah/articles/2017-06-04/system-aims-to-recreate-challenging-mountain-climbs-in-gym>
- 2017 May TechCrunch. "New system can recreate natural rock-climbing walls indoors." <https://techcrunch.com/2017/05/09/new-system-can-recreate-natural-rock-climbing-walls-indoors/>
- 2017 May CNN. "3D modeling lets rock climbers replicate real mountains -- in the gym." <http://money.cnn.com/2017/05/09/technology/3d-modeling-rock-climbing>
- 2016 Dec New Atlas. "3D-printing software reshapes musical instrument design." <http://newatlas.com/printone-free-form-wind-instruments/>
- 2016 Dec 3Ders. "New 'Printone' design tool lets you 3D print wind instruments in crazy shapes." <http://www.3ders.org/articles/20161206-new-printone-design-tool-lets-you-3d-print-wind-instruments-in-crazy-shapes.html>
- 2015 Oct BBC Radio: In Short (interview). "Was controversial Lee Harvey Oswald photo faked?" <http://www.bbc.co.uk/programmes/p035sqvx>
- 2015 Oct Discovery News. "Oswald Photo Isn't Fake, Finds Digital Forensics." <http://www.seeker.com/oswald-photo-isnt-fake-finds-digital-forensics-1770368711.html>
- 2015 May Dartmouth Now. "Creativity, Cathedrals, and Collaboration in Computer Science." <https://news.dartmouth.edu/news/2015/05/creativity-cathedrals-and-collaboration-computer-science>
- 2014 Aug TechCrunch. "Disney Conquers Physics, Uses 3D Printing To Create Impossible Spinning Tops." <https://techcrunch.com/2014/08/08/disney-conquers-physics-uses-3d-printing-to-create-impossible-spinning-tops/>
- 2014 Aug Engadget. "Disney has created an algorithm that can turn almost anything into a spinning top." <http://www.engadget.com/2014/08/09/disney-tops/>
- 2013 July MIT Technology Review: Computing News. In Article: "The Future of Graphics and Gaming." <https://www.technologyreview.com/s/517461/the-future-of-graphics-and-gaming/>

## RESEARCH ADVISING

Founder and director of the **BU Shape Lab**, Fall 2017 – present: <https://shape.bu.edu/>

Co-founded and co-directed the **Dartmouth Visual Computing Lab**, 2014 – 2017: <https://vcl.cs.dartmouth.edu/>

## Postdoc

- |             |                 |  |
|-------------|-----------------|--|
| 2016 – 2019 | Xiaoting Zhang  | Now Senior Modeling Engineer at Roblox       |
| 2015 – 2016 | Christos Mousas | Now Assistant Professor at Purdue University |

## Ph.D.

- |                |                     |  |
|----------------|---------------------|--|
| 2021 – present | Abhinit Sati        |  |
| 2021 – present | Sam Silverman       |  |
| 2019 – present | Xingjian Han        |  |
| 2018 – present | Zezhou Sun          |  |
| 2015 – 2020    | Athina Panotopoulou | Thesis title: "Stylized 2D Fabrication of Non-Photorealistic Images" |

## M.S. Theses

- |      |               |   |
|------|---------------|---|
| 2015 | Lingfeng Wang | Thesis title: "Buoyancy Optimization for Computational Fabrication" (Now Software Engineer at Uber)     |
| 2015 | Nook Harquail | Thesis title (joint with M. Allen): "Foldlings: Visualization Tools for Interactive Pop-up Card Design" |

2015	Marissa Allen	Thesis title (joint with N. Harquail): “Foldlings: Visualization Tools for Interactive Pop-up Card Design”
2013 – 2014	Lukas Beyeler	Thesis title: “Mikado: Which Objects to Pick Up in A Safe Way?”

**Ph.D. & M.S. Projects**

2018 – 2021	Benjamin Verdier	Ph.D. Directed Study (Now at PTC Onshape)
2019	Jamie Nelson	M.S. Directed Study, Project topic: “Pose estimation of Rock Climbers in Monocular Video” (Now at Akamai Technologies)
2017 – 2018	Qiwei Zheng	M.S. Directed Study, Project title: “Object Stability Analysis and Retrofit Design: Sculpture Conservation” (Now at Microsoft)
2015 – 2016	Rawan Al Ghofaili	Ph.D. Independent Study
2014 – 2015	Srivamshi Pittala	Ph.D. Independent study

**Undergraduate**

2022	Stanley To	BU UROP, Kilachand Keystone project
2022	Emilio Latorre	BU Directed Study
2022	Hayden Jennings	Undergraduate research assistant
2019 – 2020	Dennis Henneman	BU UROP (Now at MathWorks)
2019 Spring	Tammy Qiu	BU College Prize: College of Arts & Sciences (Now at MIT Media Lab)
2017 – 2019	Anthea Yichen Li	BU UROP Arts Initiative Summer Research Award, BU College Prize: College of Arts & Sciences (Now M.S. student at Stanford)
2015 – 2017	Liane Makatura	Thesis title: “Tools for Physical Graphic Design.” Dartmouth Presidential Scholar, Fulbright Scholar (Now Ph.D. student at MIT)
2016	Lily Xu	Dartmouth Presidential Scholar (Now Ph.D. student at Harvard)
2016	Alex Weinberg	Dartmouth Presidential Scholar
2012 – 2013	Clea Benz	Thesis title: “3D Scene Flow Estimation of Deforming Architectural Models with Feature Tracking”

**Thesis Committees, Reader**

2022 June	Robert Kovacs	Ph.D. Thesis Defense: “Human-Scale Personal Fabrication”, Hasso Plattner Institut
2022 Mar	Siddharth Mysore	Ph.D. Prospectus Defense: “Conditioning Behavior Styles of Reinforcement Learning Policies,” Boston University
2021 Aug	Aldair Gongora	Ph.D. Thesis Defense: “Accelerating Mechanical Design using Autonomous Experimentation,” Boston University
2016 Apr	Weifu Wang	Ph.D. Thesis Defense: “Constraint-Based Robot Knot Tying,” Dartmouth College
2015 Aug	Lukas Zirngibl	M.S. Thesis Defense: “DIMENSION4: Computational Magnetic Drawing Machines,” Dartmouth College

**OUTREACH ACTIVITIES**

2022 – present	Access Computing Institutional Partner, Representative of Boston University Computer Science. <a href="https://www.washington.edu/accesscomputing/about/partners">https://www.washington.edu/accesscomputing/about/partners</a>	
July 2022	Panelist: Women in Computer Science, Boston University Artemis Project.	
2022	Selection Committee for Women in Graphics (WiGRAPH) Rising Stars Program.	
2021 Aug	Summer Geometry Institute (SGI), MIT. Invited Lecture.	
2021 July	Panelist: Women in Graphics Research (WiGRAPH) Event, hosted by 2021 Symposium on Geometry Processing.	
2021 July	Interview: Women in Graphics Research (WiGRAPH) Path Tracing Series. <a href="https://www.wigraph.org/post-emily-whiting-virtual-conferences.html">https://www.wigraph.org/post-emily-whiting-virtual-conferences.html</a>	
2019 Dec	MIT Media Lab, Women’s Lunch Series. Invited Speaker.	

2019 Dec	Science Solstice Day, Driscoll School, Brookline. Hosted at BU Computer Science Department. Presenter: Led hands-on activity with 6 <sup>th</sup> grade students on mechanics and digital fabrication.
2019 July	AI4ALL Summer Program, Boston University. Invited Speaker: introduced female high school students to research in digital fabrication.
2019 June	Faculty review committee: Grace Hopper Celebration student sponsorship, Boston University Computer Science Department.
2018 Dec	Science Solstice Day, Driscoll School, Brookline. Hosted at BU Computer Science Department. Presenter: introduced middle school students to research in digital fabrication.
2018 Summer	Greater Boston Research Opportunities for Young Women (GROW), Boston University. Faculty advisor for high school research internship.
2018 July	Summer Pathways: high school outreach program, Boston University. Invited Career Panelist.
2015 Oct	Grace Hopper ACM Student Research Competition Jury, Houston, USA.
2011 Apr	Science-Engineering-Technology (SET) in the City Program, Museum of Science, Boston. Invited Panelist: Young Women in STEM.
2011 Mar	PBS NOVA. "The Secret Life of Scientists & Engineers." Featured Scientist, Season 2011, Episode 39. <a href="http://www.pbs.org/video/secret-life-of-scientists-emily-whiting-architectural-engineer/">http://www.pbs.org/video/secret-life-of-scientists-emily-whiting-architectural-engineer/</a>
2008 Feb	Google Workshop for Women Engineers, PhD Discussion Panel, San Jose, USA.