

Summary

HCI Researcher, Computational Designer and Architect

I worked as an **architect** and **computational designer** for 5+ years before starting PhD in **computer science** at MIT. My current research is in the field of **Human Computer Interaction** with focus on **tools for that enable adaptive learning of various skills**. My work is at the intersection of computational design and computer science and I am interested in interdisciplinary research with cognitive science, education and design.

Academic Qualifications

2018 - present

PhD Student, 3rd year

Massachusetts Institute of Technology, School of Engineering, Cambridge, USA
Department of Electrical Engineering and Computer Science, GPA: 4.8/5.0

Minor: Brain and Cognitive Sciences

Research: Using Rapid Fabrication for Adaptive Learning - **Prof. Stefanie Mueller**

Courses: Computer Vision, Computer Graphics, Data Visualization, Machine Learning

2015 - 2017

Master of Science (M.S.) in Computer Science (Dual Degree),

Massachusetts Institute of Technology, School of Engineering, Cambridge, USA
Department of Electrical Engineering and Computer Science, GPA: 4.8/5.0

Thesis: Computing Cognitive Diversity | Advisor - **Prof. Patrick Winston**

2015 - 2017

Master of Science in Architectural Studies (SMArchS),

Massachusetts Institute of Technology, School of Architecture, Cambridge, USA
Design and Computation Group, GPA: 5.0/5.0

Thesis: Thirteen Ways of Looking | Advisor - **Prof. George Stiny**

2009 - 2011

Master of Science (M.Sc.) in Architecture,

Architectural Association School of Architecture, London, UK

Emergent Technologies and Design group, Grade: Distinction

Thesis: Design and Fabrication of Dynamic Tensegrity Systems | Advisor - **Prof. Toni Kotnik**

2003 - 2008

Bachelors in Architecture (B.Arch),

Mumbai University, Kamla Raheja Vidhyanidhi Institute of Architecture, Mumbai, India

Department of Architecture and Urban Studies, Grade: A

Thesis: Rehabilitating Communities in Gujarat through Design | Advisor - **Prof. Vandana Sinh**

Publications (Human Computer Interaction)

- 2021 **Dishita Turakhia**, Qini Yi, Lotta Blumberg, Andrew Wong, Stefanie Mueller. Can Physical Tools that Adapt their Shape based on a Learner's Performance Help in Motor-Skill Training? *In Proceedings for Tangible Embedded Interfaces (TEI'21)*
- 2021 **Dishita Turakhia**, Yoonji Kim, Qini Yi, Lotta Blumberg, Andrew Wong, Stefanie Mueller. Adapt2Learn: A Toolkit for Configuring the Learning Algorithm for Adaptive Tools for Motor-Skill Training? *In Proceedings for ACM Designing Interactive Systems (DIS'21)*
- 2021 **Dishita Turakhia**, Harrison Allen, Kayla DesPortes, Stefanie Mueller. FabO: Integrating Fabrication with a Player's Gameplay in Existing Digital Games. *In Proceedings for ACM Creativity and Cognition (C&C'21)*

Publications (Computational Design and Architecture)

- 2016 **Dishita Turakhia**. Spatial Cognition: Significance of Scientific aspects in Architectural Design. *In Conference on Academy for Neuroscience in Architecture (ANFA)*

- 2016 Michael Budig, **Dishita Turakhia**. **Crafting Skins**. *In Proceedings for Association for Architectural Education (AAE)*
- 2013 **Dishita Turakhia**. **Dynamic Tensegrity Systems**. *In Conference on Computer-Aided Architectural Design Research in Asia (CAADRIA)*
- 2013 **Dishita Turakhia**. **Generative Algorithm for Non-regular Dynamic Tensegrity Systems**. *In Proceedings for Shape Modeling International (SMI)*

Awards and Fellowships

- 2021 **Facebook Fellowship Finalist**,
In top 3.5% applicants out of 2,163 applications
- 2019 **MISTI-Germany Grant**, Massachusetts Institute of Technology, University of Stuttgart
Funding for collaboration research project with researchers at University of Stuttgart
- 2018 **Edwin S. Webster Graduate Fellowship**, Massachusetts Institute of Technology
1 year tuition fellowship towards PhD from dept. of Electrical Engineering & Computer Science
- 2018 **Grace Hopper Student Scholar**, Anita B. Org.
Awarded scholarship (Sponsored by Netflix), attended GHC conference (33000 women attendees)
- 2017 **Bill Mitchel Graduate Fellowship**, Massachusetts Institute of Technology
Awarded research grant for SMArchS thesis on Socially Intelligent Machines
- 2016 **MISTI-Chile Grant**, Massachusetts Institute of Technology
Awarded travel fund to design a origami robot using digital fabrication at UAI, Santiago, Chile
- 2015 **Research Fellowship**, Massachusetts Institute of Technology
Awarded by dept. of Architecture, with Prof. Larry Sass - to develop modular digitally fabricated structural systems for affordable housing

Grants (awarded to my PI, Stefanie Mueller for my current research projects on Adaptive Learning)

- 2020 **Microsoft Faculty Fellowship** (\$200k)
- 2019 **NSF Career Small** (\$300k)
- 2019 **MIT Integrated Learning Initiative** (\$250k)
- 2018 **MIT.Nano** (\$200k)
- 2018 **NSF Career** (\$500k)
- 2018 **MIT Integrated Learning Initiative** (\$250k)

Research Experience (Human Computer Interaction)

- 2017 - 2018 **Researcher**, Computer Science Artificial Intelligence Laboratory (CSAIL), MIT
Human Computer Interaction Engineering (HCIE) Group | P.I. - **Prof. Stefanie Mueller**
Research: Developed adaptive learning systems for motor skill learning

Research Experience (Computational Design and Architecture)

- 2016 **Research Assistant**, School of Architecture and Planning (SA+P), MIT
Computational Fabrication Group | P.I. - **Prof. Larry Sass**
Research: Developed modular rapid fabrication technique for housing
- 2015 **Research Assistant**, Singapore University of Technology and Design
Architecture and Sustainable Design | P.I. - **Prof. Michael Budig**
Research: Studied structural properties of sheet assembly structures through experiments
- 2008 **Exchange Student Researcher**, Bern University of Applied Sciences, Switzerland
Research: Studied Housing typologies in India (3 Cities) and Switzerland (1 City)

Teaching Experience (Human Computer Interaction)

- 2020 (Fall) **Teaching Assistant**, School of Engineering, MIT
Course: 6.928 - Leading Creative Teams | Instr. - **Prof. David Nino**
Taught: Key leadership skills for creative problem-solving and team building
- 2018 (Fall) **Teaching Assistant**, School of Engineering, MIT
Course: 6.810 - Engineering Interactive Technologies | Instr. - **Prof. Stefanie Mueller**
Taught: Design and building of sensor, actuator based interactive hardware devices
- 2017 (Spring) **Teaching Assistant**, School of Architecture, MIT
Course: 4.541 - Shape Grammar | Instr. - **Prof. George Stiny**
- 2017 (Fall, Spring) **Online Course Facilitator**, MIT-CSAIL, MIT
Course: Human-Computer Interaction for User Experience Design| Instr. - **MIT Professors**
Taught: Design theories and application strategies for UX design to 50+ course participants across the world, graded their weekly assignments and provided feedback

Teaching Experience (Computational Design and Architecture)

- 2017 (Fall) **Workshop Tutor**, Aalto Technical University
Topic: Spatial Cognition in Design.
Taught: Exploring immersive design UI for architects using AR, VR, and XR
- 2012 - 2014 **Visiting Tutor**, KRVA, Mumbai University
Topic: Computational Design.
Taught: Parametric design to 80+ architecture students
- 2011 - 2013 **Workshop Tutor**, Bhartiya Vidhyapeeth University
Topic: Parametric design and construction of architectural structures (2 workshops)
Taught: Parametric design, rapid prototyping, material testing and construction techniques

Teaching Certification

- 2017 (Spring) **Kaufman Teaching Certification Program (KTCP)**, MIT
Teaching + Learning Lab
Key skills learned: Developing new curriculum, course material, effective teaching techniques

Mentoring Experience

- 2017 - Present **Masters Students:** Yini Qi (2018), Or Oppenheimer (2019), Julia Lee (2019)
Undergraduate Students: Lotta Blumberg (2018), Andrew Wong (2018), Bobby Rauch (2019), Harrison Allen (2019), Maaya Prasad (2020), Joshua Verdejo (2020)
Highschool Students: Christian DeWeck (2018)

Professional Experience (Computational Design and Architecture)

- 2013 - 2015 **Principal Architect**, Architexture Buro, Mumbai, India
Led design team for 2 major housing architecture projects in Goa, 3 interior projects (2 published), collaborated with product designer to fabricate recycled furniture from old magazines
- 2012 - 2013 **Project Architect**, Sameep Padora and Associates, Mumbai, India
Designed sensor based responsive facade for building using Arduino and Firefly. Computational design lead for 4 architecture and 2 interior projects
- 2011 **Architectural Assistant**, PLP Architecture, London, UK
Designed parametric structures and conducted environmental analysis for projects in Abu Dhabi, Ningbo city (award winning project), Paris, and London
- 2008 - 2009 **Architectural Intern**, BSR Architekten, Bern, Switzerland
Designed spatial planning for 3 competition projects in Bern (including winning project in Raiffeisen)

Invited Talks

- 2020 **HarvardX**, Harvard University, Cambridge, USA
Topic: Adaptive Learning of Motor Skills
- 2019 **MIT iLi**, MIT, Cambridge, USA
Topic: Adaptive Learning of Motor Skills
- 2017 **TEDx Beacon Street**, Boston, USA
Topic: Can Computers be Creative?
- 2016 **Bridging Synapses**, San Diego, USA
Topic: Significance of Scientific aspects in Architectural Design

Conference Volunteering (Human Computer Interaction)

- 2018 - present **Reviewer:** CHI ('21), UIST ('20, '21), DIS ('21), TEI ('21), TOCHI ('19), IUI (2018), CHI-Play ('18)
Student Volunteer: UIST ('19, '20), CHI ('20), CHI- Exec Comm SV ('18)
Session Chair: CHI ('20 - Cambridge)

Conference Volunteering (Computational Design and Architecture)

- 2016 - present **Reviewer:** ASA (2016)

Leadership Certification

- 2016 **GELP - Gordon Engineering Leadership Program, MIT**
Key skills learned: Leading creative teams, conflict management, negotiating conflicts effectively

Outreach (Women Leadership and Entrepreneurship)

- 2020 (Spring) **Fellow**, Diversity, Equity and Inclusion (DEI, MIT)
Organized remote events to create awareness for diversity in graduate school life
- 2019 (Fall) **Committee Member**, Graduate Women of Course 6 at MIT EECS (GW6)
Organized: Graduate Women Summit (2019)
- 2019 (Summer) **Conference Committee**, New England Graduate Women in STEM Engineering (NEGWISE)
Organized: Summer retreat for graduate women in STEM from Brown, Brandeis, Harvard, MIT, Dartmouth, Northeastern, and Tufts University
- 2019 (Spring) **Student Committee**, EECS Visiting Committee
Recommended: Improvements for graduate women's physical and mental health at EECS
- 2019 (Spring) **Conference Committee**, Graduate Women at MIT (GWAMIT)
Organized: Fall conference on leadership and conducted workshops on giving TEDx talks
- 2018 - Present **Speaker Catalyst Volunteer**, TEDx BeaconSt '18, '19, '20 and TEDxMIT '19
Advised: Various speakers included **Turing Awardee Dr. Barbara Liskov** with their TEDx talks
- 2017 (Fall) **Volunteer Instructor**, Canopy Tree,
Taught: Ideation, market research, pitching demos to middle school students on their start-up ideas
- 2017 (Summer) **Instructor**, Global Startup Labs (GSL)
Taught: Customer-centric product design, ideation for tech apps, design of user-interfaces, market research, business plan development and workflow design

References

- Prof. Stefanie Mueller** Assistant Professor, School of Engineering, Massachusetts Institute of Technology
- Prof. George Stiny** Professor, School of Architecture and Planning, Massachusetts Institute of Technology
- Prof. David Nino** Assistant Professor, School of Engineering, Massachusetts Institute of Technology
- Prof. Toni Kotnik** Professor, School of Architecture and Planning, Aalto Technical University
- Prof. Michael Budig** Assistant Professor, School of Architecture, Singapore University of Technology and Design