

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 autodidactic 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, 4th 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 Vidyanidhi 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)

- 2022 **Dishita Turakhia**, Stefanie Mueller, Kayla DesPortes. Identifying Game Mechanics for Integrating with Fabrication Activities in Existing Digital Games. (*In Proceedings for ACM CHI'22*) [24.7% acceptance]
- 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)* [23.1% acceptance]
- 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)* [26.7% acceptance]
- 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)* [29.9% acceptance]

Workshops and Demos (Human Computer Interaction)

- 2022 [Workshop] **Dishita Turakhia**, Paulo Blikstein, Nathan Holbert, Marcelo Worsley, Jennifer Jacobs, Fraser Anderson, Jun Gong, Kayla DesPortes, and Stefanie Mueller. **Reimagining Systems for Learning Hands-on Creative and Maker Skills**. *In Conference on Human Factors in Computing Systems Extended Abstracts (CHI '22 Extended Abstracts)*
- 2021 [Demo] **Dishita Turakhia**, Yoonji Kim, Qini Yi, Lotta Blumberg, Andrew Wong, Stefanie Mueller. **Designing Adaptive Tools for Motor Skill Training** *In The Adjunct Publication for ACM Symposium on User Interface Software and Technology (UIST'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

- 2022 **Meta (Facebook) Research Ph.D. Fellowship**, AR/VR category, Funding for up to 2 years ~\$200k (Awarded to top 1.5% from 2300+ applicants)
- 2021 **Facebook Fellowship Finalist**, AR/VR category, 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)

2021 (Fall) **Teaching Assistant**, School of Engineering, MIT
Course: 6.034, 6.844 - Artificial Intelligence | Instr. - **Dr. Kimberle Koile, Prof. Randall Davis**
Taught: Recitations for the 20+ students of a (250+ enrollment) class on Artificial Intelligence
Head TA for grad version of the course that examines AI from technical, social, and ethical lens

2021 (Summer) **Online Learning Facilitator**, Schwarzman College of Computing, MIT
Online Course: AI and Automation for Enterprise | Instr. - **Prof. Sertac Karaman, Prof. Daniela Rus, Prof. Jim Glass, Prof. Julie Shah, and Prof. David Autor**
Taught: Facilitated discussion groups with 25+ course participants on ethics and human side of AI and automation in industry applications

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), Carlos Castillo (2021), Thomas Adebiyi (2021), Ivy Wang (2021), Brent Lui (2021)

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

Workshop Organizer: CHI ('22)

Social Co-chair: C&C ('22)

Reviewer: CSCW ('22), 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: C&C ('21), CHI ('20 - Cambridge)

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)

- 2022 (Spring) **Committee Member**, EECS Committee of Diversity Equity and Inclusion (EECS CDEI, MIT)
Assessed the Ph.D. graduate admissions process and provided recommendations to increase the minority representation in the EECS dept.
- 2021 (Fall) **Mentor**, EECS Graduate Admission Assistance Program (EECS GAAP, THRIVE, MIT)
Mentored two minority PhD applicants with their grad admission package to MIT EECS dept.
- 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** Associate Professor, School of Engineering, Massachusetts Institute of Technology
- Prof. Kayla DesPortes** Assistant Professor, School of Engineering, New York University
- 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