

TIFFANY TSENG

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EDUCATION

- 2016 **Massachusetts Institute of Technology** | Cambridge, MA
PhD in Media Arts and Sciences
Advisor: Mitchel Resnick | Lifelong Kindergarten Group
- 2011 **Stanford University** | Stanford, CA
MS in Mechanical Engineering - Design Methodology
Advisor: Sheri Sheppard | Engineering Education Lab
- 2009 **Massachusetts Institute of Technology** | Cambridge, MA
BS in Mechanical Engineering
Advisor: Maria Yang | Ideation Lab

EMPLOYMENT

- AUG 2018 – PRESENT **Glitch** | New York, NY
Design Engineer
Combining UX design and front-end engineering to develop features for Glitch, a creative community for anyone to build and share apps on the web. Designing and implementing features from concept to production.
- OCT 2016 – JUN 2018 **Autodesk** | San Francisco, CA
Principal User Experience Designer
Lead user experience for electronic design features in EAGLE, Fusion 360, Tinkercad, and Circuits.IO.
- SUMMER 2016 **Harvard Library Innovation Lab** | Cambridge, MA
Summer Fellow
Developing open tools for community building in library makerspaces.
- SUMMER 2016 **MIT Media Lab** | Cambridge, MA
Postdoctoral Researcher
Designing and supporting documentation tools for makers.
- SPRING & SUMMER 2011 **IDEO** | Palo Alto, CA
Mechanical Engineering Intern
Created prototypes, test fixtures, engineering drawings, and concepts for several client-facing projects ranging from consumer electronics, food and beverage, and toys.
- SUMMER 2010 **Luidia Inc.** | San Carlos, CA
Engineering Intern
Rapid prototyped several new concepts for interactive whiteboard products.
- SUMMER 2008 **Fisher-Price** | East Aurora, NY
Baby Gear Product Development Intern
Created prototypes and addressed manufacturing modifications for existing and developing Baby Gear products. Developed mathematical and dynamic model of new swing concept in Pro/E.
- JANUARY 2008 **5 Wits Productions** | Saugus, MA
Mechanical Engineering Extern
Designed concepts and prototypes for interactive spy-themed room escape.
- SUMMER 2007 **Insight Product Development** | Maynard, MA
Engineering Intern
Generated 3D models and assemblies, conducted flow rate experiments, and documented testing of new medical devices.

ADDITIONAL

- 2018 Recurse Center Alum | Created SVG apps during 6-week self-directed programmer's retreat
- 2017 IPC-Certified Interconnect Designer
- 2014 Maker Education Open Portfolio Project | National working group member
- 2011 Mechanix Kickstarter project 146% funded (\$3600) | Featured on Kickstarter homepage

SELECTED PROJECTS

- 2016 – 2018 **Tinkercad Circuits** | Autodesk | <http://tinkercad.com>
Lead UX designer for free software design tool for building interactive creations with electronics.
Designed Circuit Assembly (feature that blends 3D design with electronics modules) and Code Blocks (visual programming environment for Arduino)
Launched features to over 7 million registered users.
- 2015 – 2016 **Spin** | MIT Media Lab | <http://spin.media.mit.edu>
Invented photography turntable system for capturing animations of design projects over time.
Designed turntable hardware (digitally fabricated elements, PCB) and companion mobile apps (Android and iOS) and web app (Ruby on Rails).
Used by 35 different makerspaces around the world, who have created over 2,000 animations.
Presented at DIS, IDC, and Sketching in Hardware; recognized with Maker Faire Editor's Choice award.
- 2013 – 2016 **Build in Progress** | MIT Media Lab | <http://buildinprogress.media.mit.edu>
Created an online community for sharing and visualizing the process of developing DIY projects.
Currently supports over 2,000 makers around the world.
Developed website (Ruby on Rails) and companion Android and iOS apps.
Presented at Fablearn, IDETC, and Sketching in Hardware; book chapter in Makeology series.
- 2011 – 2012 **Replay** | MIT Media Lab
Developed a self-documenting construction kit for capturing how tangible constructions come together.
Presented at IDC and Sketching in Hardware; included in authored book chapter *Modifying the Shape of an Arduino* in Building Open Source Hardware.
- 2011 – 2012 **Mechanix** | Stanford University | <http://slate-learning.com>
Conceptualized and designed, in collaboration with Coram Bryant, an interactive system for capturing children's Rube Goldberg creations.
Presented at TEI, IDC, and CHI; received Innovation Award from Disney Research Learning Challenge at SIGGRAPH and Maker Faire Education Award.
Successfully filed provisional patent for Transparent Magnetic Display for Image Tracking of Magnetic Objects; ran 146% funded Kickstarter campaign (\$3600).

AWARDS AND DISTINCTIONS

- 2011 – 2016 NSF Graduate Research Fellowship
2015 Maker Faire Bay Area Editor's Choice Award for Spin
2011 Maker Faire Bay Area Education Award for Mechanix
2010 Disney Research Learning Challenge Innovation Award (for Mechanix)
2009 – 2011 Stanford Graduate Engineering Fellowship
2008 Pi Tau Sigma Mechanical Engineering Honor Society

PUBLICATIONS

Book chapters

- 2016 **Tseng, T.** (2016). Build in Progress: Building process-oriented documentation. In K. Peppler, E. Halverson, & Y. Kafai (Eds.), *Makeology: The maker movement and the future of learning (Volume 2)*. New York, NY: Routledge.
- 2014 **Tseng, T.** (2014). *Modifying the Shape of an Arduino*. In A. Gibb (Ed.) *Building open source hardware: DIY manufacturing for hackers and makers* (pp. 83-94). Upper Saddle River, NJ: Addison-Wesley.

Conference papers

- 2016 **Tseng, T.** and Resnick, M. (2016). Spin: Examining the Role of Engagement, Integration, and Modularity in Supporting Youth Creating Documentation. In *Proceedings of DIS*. Brisbane, Australia.
- 2015 **Tseng, T.** (2015). Making Make-throughs: Supporting young makers sharing design process. In *Proceedings of Fablearn*. Stanford, CA.
- Tseng, T.** (2015). Spin: A photography turntable system for creating animated documentation. In *Proceedings of IDC* (pp. 422-425). Medford, MA.
- Tseng, T.** and Tsai, G. (2015). Process products: Capturing design iteration with digital fabrication. In *Proceedings of TEI* (pp. 631-636). Stanford, CA.

- 2014 **Tseng, T.** and Resnick, M. (2014). Product versus process: Representing and appropriating DIY projects online. In *Proceedings of DIS* (pp. 425-428). Vancouver, Canada
Tseng, T., Yang, M., and Ruthmann, A. (2014). Documentation in progress: Challenges with representing design process online. In *Proceedings of IDETC*. Buffalo, NY.
- 2013 **Tseng, T.** and Bryant, C. (2013). Design, reflect, explore: Encouraging children's reflections with Mechanix. In *Proceedings of CHI Extended Abstracts* (pp. 619-624). Paris, France.
- 2012 **Tseng, T.** and Resnick, M. (2012). Building examples: Media and learning affordances. In *Proceedings of IDC* (pp. 176-179). Bremen, Germany.
Tseng, T., Hemsley, R., and Resnick, M. (2012). Replay: A self-documenting construction kit. In *Proceedings of IDC* (pp. 320-322). Bremen, Germany.
 Ducao, A., **Tseng, T.**, and von Kapri, A. (2012). Transparent: Brain computer interface and social architecture. *SIGGRAPH Posters* (p. 26). Los Angeles, CA.
- 2011 **Tseng, T.**, Bryant, C., and Blikstein, P. (2011). Collaboration through documentation: Automated capturing of tangible constructions to support engineering design. In *Proceedings of IDC* (pp. 118-126). Ann Arbor, Michigan.
Tseng, T., Chen, H.L., and Sheppard, S. (2011). Early academic experiences of non-persisting engineering undergraduates. In *Proceedings of ASEE*. Vancouver, Canada.
Tseng, T. and Yang, M.C. (2011). The role of spatial-visual skills in a project-based engineering design course. In *Proceedings of ASEE*. Vancouver, Canada.
Tseng, T., Bryant, C., and Blikstein, P. (2011). Mechanix: A tangible interactive wall for exploring engineering design. In *Proceedings of TEI* (pp. 265-266). Funchal, Portugal.

Blog posts

- 2017 **Tinkercad Circuits Code Blocks**
<https://medium.com/@scientific/9953d47b5a3f>
Designing Interactive 3D Printed Things with Tinkercad Circuit Assemblies
<https://medium.com/@scientific/518ee516adb6>
- 2013 **Spaces for Learning about Making in the Bay Area | Make: Makerspaces**
<https://spaces.makerspace.com/spaces-for-learning-about-making-in-the-bay-area/>

SERVICE

Conference reviewer

ACM Conference on Human Factors in Computing Systems (2018, 2016, 2015)
 ACM Interaction Design and Children (2017, 2016)
 ACM Designing Interactive Systems (2017)
 ACM User Interface Software and Technology (2017)
 ASME International Design Engineering Technical Conference (2014)
 Fablearn (2016, 2015)
 Open Hardware Summit (2012)

Journal reviewer

Journal of Engineering Education (2015, 2011, 2010)

SELECTED PRESS

- 2016 **Tinkercad Adds Embedded Circuits, Lego Exports, and More**
 Makezine (<https://makezine.com/2017/05/20/tinkercad-adds-embedded-circuits-lego-exports/>)
Tinkercad Does Arduino
 Hackaday (<https://hackaday.com/2017/07/11/tinkercad-does-arduino/>)
- 2016 **Putting a New Spin On Product Photography**
 PSFK (<http://www.psfk.com/2016/02/putting-a-new-spin-on-photography.html>)
- 2015 **Spin Turntable Prototyping**
 Exploratorium Tinkering Studio (<http://tinkering.exploratorium.edu/2015/10/02/spin-bot-prototyping>)
Spin DIY Photography Turntable System
 Hackaday (<http://hackaday.com/2015/05/24/spin-diy-photography-turntable-system>)
This Turntable Lets You Create Animated GIFs of Your DIY Projects
 Atmel Bits & Pieces (<https://atmelcorporation.wordpress.com/2015/05/26/this-turntable-lets-you-create-animated-gifs-of-your-diy-projects/>)

- Reconsidering Failure in Maker-Centered Learning**
Agency by Design (<http://www.agencybydesign.org/reconsidering-failure-in-maker-centered-learning>)
- 2014 **Build in Progress Shares DIY Projects Before They're Finished**
Lifehacker (<http://lifehacker.com/build-in-progress-shares-diy-projects-before-theyre-fin-1623380893>)
- Invention Help (featuring Build in Progress)**
Popular Technology Radio (<http://www.ernlive.com/show/poptech-radio/59/episodes/invention-help-segment-6-56>)
- 2010 **Hooking Children on Engineering**
Stanford School of Education (<https://ed.stanford.edu/news/hooking-children-engineering>)

SELECTED PRESENTATIONS, DEMOS, AND WORKSHOPS

- 2018 **Stencilify**
Invited talk for Recurse Center's Localhost public talks in NYC
- Design Generalist "In the Wild"**
Invited talk for Design Field Notes lecture series at Berkeley Jacobs Institute for Design Innovation
- EAGLE UX from Component to Design**
Invited talk for SupplyFrame's Hardware Developers Didactic Galactic Meetup
- 2017 **Circuit Assemblies: Building Interactive 3D-Printed Things with Tinkercad**
Talk at Sketching in Hardware
- Tinkercad Circuit Assmeblies**
Talk for Santa Clara County Office of Education
- Tinkercad Circuit Assmeblies**
Workshop for Cal Academy of Sciences
- Makerspaces: Combining Interests, Community, and Tools for Empowerment**
Invited talk for TASCHA, University of Washington
- 2016 **Designing for Design Process**
Invited guest lecture, User Interface Design (CS160) at UC Berkeley
- Documentation as Stories of Design Process**
Invited talk, Concord Consortium
- Making Make-throughs**
Invited talk, littleBits
- Transparent Making**
Invited talk, ATLAS at University of Colorado Boulder
- Transparent Making**
Invited talk, College of Design at University of Minnesota
- 2015 **Make-throughs**
Talk at Sketching in Hardware
- Creating Useful Documentation**
Talk at NYU ITP Camp
- Spin and Build in Progress**
Demo at Maker Faire Bay Area
- Capturing Design and Process in Youth Portfolios**
Workshop for educators at Computer Clubhouse Conference
- 2014 **Thinking Like a Kid Panel**
Panel members at Design Exchange Boston Conference
- Build in Progress**
Demo at Digital Media and Learning Conference
- 2013 **Building a Portfolio**
Presentation for MIT Mechanical Engineering
- Build in Progress**
Workshop for teenagers at the Boston Computer Clubhouse
- Stories and Recipes: Sharing Design Process**
Talk at Sketching in Hardware
- Fun With LEGO**
Presentation for Maker Camp Video Series (<https://www.youtube.com/watch?v=wq57RbjpVfw>)
- 2012 **Mechanix**
Demo at Maker Faire Bay Area
- 2010 **Mechanix**
Demo for Disney Research Learning Challenge at SIGGRAPH (resulted in Innovation Award prize)

TEACHING

- MARCH 2017 **Instructor, *Designing and Fabricating Printed Circuit Boards*** | Autodesk
Two-day class for Artists in Residence program at Autodesk, covering circuit board design in EAGLE, fabrication with OtherMachine desktop mill, and assembly processes (hand soldering + reflow oven).
- SPRING 2016 **Lab Supervisor, *Toy Product Design 2.00B*** | MIT Mechanical Engineering
Mentored undergraduate students prototyping interactive toys under the theme “Intrigue.”
- JANUARY 2015 **Instructor, *Iterative Interaction Design 2.S97*** | MIT Mechanical Engineering
Designed and taught month-long interaction design course for MIT undergraduates covering digital fabrication, Arduino prototyping, and design iteration. Led team of five undergraduate mentors and teaching assistants. 3.9/4.0 instructor rating.
- JANUARY 2014 **Co-Instructor, *Human + Computer*** | MIT, RISD, Brown
Taught and advised undergraduate and graduate students from MIT, RISD, and Brown on interaction design projects inspired by transhumanism. Culminated in gallery show at RISD’s student art gallery.
- FALL 2013 **Lab Instructor, *Introduction to Design 2.00*** | MIT Mechanical Engineering
Lab instructor for undergraduate mechanical engineering human-centered design course.
- SPRING 2013 **Team Mentor, *Toy Product Design 2.00B*** | MIT Mechanical Engineering
Mentored 5 undergraduate students prototyping interactive toys under the theme “In the Dark.”
- FALL 2012 **Teaching Assistant, *How to Make Almost Anything*** | MIT Media Lab
Lab assistant for graduate digital fabrication course. Taught vinyl cutting circuit design.
- FALL 2012 **Lab Instructor, *Introduction to Design 2.00*** | MIT Mechanical Engineering
Lab instructor for undergraduate mechanical engineering human-centered design course.
- AUGUST 2012 **Lab Technician, Haystack Mountain School of Craft**
Assisted with managing Fab Lab and helping practicing artists and designers creating projects in the shop.
- SPRING 2012 **Lab Instructor, *Toy Product Design 2.00B*** | MIT Mechanical Engineering
Mentored 5 undergraduate students prototyping interactive toys under the theme “Imagination.”
- FALL 2011 **Team Mentor, *Product Engineering Processes 2.009*** | MIT Mechanical Engineering
Mentored team of 18 senior mechanical engineering students in capstone course.
- WINTER 2011 **Lab Teaching Assistant, *Beyond Bits and Atoms*** | Stanford
Teaching assistant for graduate course on developing educational technologies.
- SUMMER 2009 **Residential Tutor, *Women’s Technology Program*** | MIT
Taught circuit design and mentored high school senior girls over the course of two months as part of summer engineering enrichment program.
- SPRING 2009 **Team Mentor, *Toy Product Design 2.00B*** | MIT Mechanical Engineering
Mentored 5 undergraduate students prototyping interactive toys under the theme “The Arts.”

MENTORSHIP

As a graduate student at the MIT Media Lab, I had the pleasure of supervising **21 undergraduate and graduate research assistants** from MIT, Harvard, Wellesley, and RISD across departments such as Mechanical Engineering, Computer Science and Electrical Engineering, Education, and Industrial Design, including the following:

Stephanie Su, MIT 2013 (now Google)
Peter Godart, MIT 2015 (now NASA Jet Propulsion Lab)
Ishwarya Ananthabhotla, MIT 2015 (now MIT Media Lab)
Ryan Mather, RISD 2015 (now LittleBits)
Rahul Singh, Harvard 2015 (now MIT Teaching and Learning Lab)
Stephen Rodan, MIT 2016 (now NASA Jet Propulsion Lab)
Alyssa Waln, MIT 2016 (now Google)
Teresa Tai, Wellesley 2016 (now Google)
Amber Meighan, MIT 2017 (now Facebook)

DESIGN SKILLS

MACHINE SHOP	Laser cutting, 3D printing, CNC routing, vinyl cutting, waterjet, milling, lathing, injection molding, vacuum forming, metalworking, and woodworking
DESIGN SOFTWARE	Mechanical CAD: SolidWorks, Fusion 360 Electrical CAD: EAGLE, Arduino, Fritzing Visual Design: Sketch, Invision, Framer, Adobe Creative Suite (Illustrator, InDesign, Photoshop, Premier)
PROGRAMMING	React, Ruby, Objective-C, Java, Javascript, HTML, CSS, Processing, LaTeX, MATLAB, Stata
OTHER TECHNOLOGIES	Mobile development (iOS & Android), Xcode, Eclipse, Ruby on Rails, PostgreSQL, Heroku, Git

PERSONAL

WMBR DJ for Eater's Digest radio show / [podcast](#) (2011–2016)
Design Editor for 400-page MIT Technique Yearbook (2009)
Reviewer of 1000+ snacks via [Tasty Snacking](#) (2013–Present)