

EDUCATION

MIT MS MEDIA ARTS AND SCIENCES, MIT MEDIA LAB

Fall 2014 - Fall 2016 | Cambridge, MA

Master's Thesis: [Rapid Design and Simulation of Functional Digital Materials](#) advised by Neil Gershenfeld

POMONA COLLEGE BA PHYSICS, MINOR CHEMISTRY

Fall 2007 - Spring 2011 | Claremont, CA

Senior Thesis: [Design and Optimization of a Crank-Based Leg Mechanism](#) advised by Dwight Whitaker

EXPERIENCE

ADOBE | RESEARCH ENGINEER

March 2018 - July 2020 | San Francisco, CA

- Specializing in fabrication-related research / design tools
- Lead developer of [Fantastic Fold](#) - a design tool for folded packaging. Presented this work in front of an audience of 14,000 at Adobe MAX - Adobe's annual public-facing conference.
- 3 Patents filed, mentored 4 PhD students as summer interns

MIT CENTER FOR BITS AND ATOMS | RESEARCH ASSISTANT

Sept 2014 - Dec 2017 | Cambridge, MA

- GPU-accelerated origami physics engine with WebVR interface: [Origami Simulator](#)
- GPU-accelerated finite element solver for discretely-assembled robotic systems: [AMOEBA](#)
- Part of design team for video game based on AMOEBA work (see above) with [E-Line Media](#)
- Generalized reconstruction techniques for 3D curvi-planar surfaces from volumetric CT scan data
- Computational Fluid Dynamics simulation with WebGL: [Mixed Grid-Particle Methods](#) • [Vortex Shedding](#)
- Other Design/Simulation/Optimization tools: [Shell Form Finding](#) • [Truss Optimization](#) • [Linkage Optimization](#) • [Michell Structures](#)
- Mentored a high school student researcher (2016-2018)

NASA | VISITING RESEARCHER

Summer 2015 | Ames Research Center, Mountain View, CA

- Developed CAD tools, simulation methods, and path planning strategies for reconfigurable, robotically-assembled aerospace structures

AUTODESK / INSTRUCTABLES | SOFTWARE ENGINEER / ASSISTANT TECH EDITOR

Jan 2012 - Aug 2014 | San Francisco, CA

- Lead developer of Instructables iPad app and iPhone iOS7 redesign - featured in the App Store, June 2014
- Front-end developer for the Instructables.com web app (Django, Backbone.js, Selenium)
- Tech/electronics editorial content, including sponsored content for RadioShack and Jameco Electronics

PUBLICATIONS

[Ghassaei A](#), [Demaine E](#), [Gershenfeld N](#). [Fast, Interactive Origami Simulation Using GPU Computation](#) 7th International Meeting on Origami in Science, Mathematics and Education 2018

[Langford W](#), [Ghassaei A](#), [Jenett B](#), [Gershenfeld N](#). [Hierarchical Assembly of a Self-Replicating Spacecraft](#) IEEE Aerospace 2017

[Langford W](#), [Ghassaei A](#), [Gershenfeld N](#). [Automated Assembly of Electronic Digital Materials](#) Proceedings of the 2016 Manufacturing Science and Engineering Conference 2016

[GitHub](#)

2013-present

INVITED TALKS

UC Berkeley Field Notes Distinguished Lecture Series , --, Berkeley, CA	2019
Stanford HCI Lunch Seminar , Origami Simulation and Packaging Design Tools at Adobe, Palo Alto, CA	2019
Uber Data Visualization Nights , Building an Origami Simulator in WebGL, San Francisco, CA	2018

SKILLS

Web: Three.js, WebGL, WebVR, glsl, Require, React, Redux, Backbone, D3, JQuery, HTML, CSS, Bootstrap, Electron, Jasmine

Programming: JavaScript, NodeJS, Python, C++ (embedded), Objective C/iOS, CUDA, OpenCL, Java, MATLAB, Mathematica, Jupyter, MaxMSP, PureData, PyCharm, XCode, VSCode, Git

2D / 3D Design: Fusion 360, Solidworks, Onshape, Eagle (PCBs), Photoshop, Illustrator, Processing

Fabrication Tools: Machine shop and wood shop, laser cutter, 3D printer, ShopBot, Tormach, 3/4/5 axis milling and toolpathing, waterjet cutter, HSMWorks

Electronics: Atmel AVR, Mbed (ARM), Arduino, PCB design and fabrication, analog and digital circuit design

TEACHING

How to Make (Almost) Anything TA for graduate course at MIT Media Lab , Cambridge, MA	2015-2018
Fab Lab installation and training in Armenia , Rwanda , and Bhutan	2015-2017
Intro to Arduino , Intro to MaxMSP Workshops at Women's Audio Mission , San Francisco, CA	2013/2014
Arduino and MIDI Workshop at California College of the Arts , San Francisco, CA	2013

MEDIA COVERAGE / INTERVIEWS

Adam Savage's Maker Tour: MIT's Center for Bits and Atoms Tested	2017
Design, Sound, and Science Ableton	2014
Mini Interview Cycling74	2014
Laser-Cut Wooden Records Give New Meaning to Tree Rings Wired.com	2013
3-D printing guitars and records CNN	2013
Click BBC World Service Radio	2013
Listen To The First 3-D-Printed Records Ever Made FastCoDesign.com	2013
First 3-D Printed Records Sound Awful – And Amazing Wired.com	2012

BOOK FEATURES

Active Matter by Skylar Tibbits, MIT Press	2017
Printing Things: Visions and Essentials for 3D Printing by C Warnier and D Verbruggen, Gestalten	2014

EXHIBITIONS

Interactive Fluid Simulation File Festival , Sao Paulo	2018
Chrome Experiments Installation, Google IO , Mountain View, CA	2018
3D printed record pop-up store, Bacardi Beginnings , London	2013
Official Selection, Imagine Science Film Festival , New York, NY	2013
Autodesk Design Night , San Francisco CA	2012/2013
INVISIBLE DESIGN , Milano Design Week , Milan	2013
SXSW Create , Austin, TX	2013