Daniel Teal, PhD

Process engineer / mechanical engineer

I've 3D printed silicon! See my PhD dissertation.

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Education

University of California, Berkeley

PhD, Electrical Engineering and Computer Science, Fall 2024

I studied MEMS, process engineering, microfabrication, and developed novel vacuum charged nanoparticle deposition equipment (3D printed silicon and other materials). Advised by Prof. Kristofer Pister.

University of Texas at Austin

BS Mechanical Engineering, BS Mathematics, Spring 2019

Solids/dynamics, material science, thermodynamics, organic chemistry, heat transfer, numerical analysis, robotics, SolidWorks, FEA, electronics.

Experience

7/19–12/24 University of California, Berkeley, PhD

Studied microfabrication and MEMS. Developed direct-write nanoparticle deposition techniques. Built custom vacuum chambers, electronics, ion optics, and process equipment. Also built world's longest MEMS electrostatic motor in Berkeley Marvell NanoLab research fab. Advised by Prof. Kristofer Pister.

8/22–5/24 Berkeley EE143 Microfabrication Class, lead teaching assistant

Taught hands-on lab course (Berkeley EE143) building NMOS transistors from scratch on silicon wafers, four semesters in a row. Instructed students, maintained equipment, troubleshot processes, and managed other TAs.

8/17–6/19 Fan Nanomaterial Innovation Lab, research assistant. Built real-time electrostatic control system.

5/18–8/18 Nano Functionality Integration Group, Japan, research intern. Studied nanowire networks.

6/17–8/17 Cornell NanoScale Facility, research intern. Learned microfabrication, built and tested SAW MEMS.

9/15–5/19 UT Maker Studios, student assistant. Trained students on & maintained 3D printers and laser cutters.

9/15–5/19 UT Robotics & Automation Society, member. Built assorted robots including motorized couch.

8/17–5/19 UT ME Undergraduate Advisory Board, member. Ran the first UT Createathon hardware hackathon.

11/15–11/16 UT Advanced Manufacturing Center, research assistant. Built high-speed impact test chamber.

6/15–8/15 UT Applied Research Laboratories, intern. Acoustically detected quadcopters.

9/11–6/15 FIRST Tech Challenge, design & build lead, LASA High School Robotics. 2014-2015 world finalists.

6/11–8/15 DIY 3D printer design & construction, hobbyist. Self-taught mechatronics.

Honors

2019 NSF GRFP Fellow

2022-2023 Demetri Angelakos Memorial Achievement Award

Fall 2020 and Fall 2024 BSAC Conference Best Presentation Award

Skills

See my PhD dissertation for examples!: <www.dteal.org/resources/dissertation-dteal.pdf>

Microfabrication: MEMS, PVD, SEM, deposition, etch, metrology
Hardware: vacuum systems, robotics, some ion optics
Electronics: KiCad, analog electronics, some high voltage, embedded
Prototyping: 3D printing, laser cutting, machining
CAD & FEA: SolidWorks, Fusion 360, SIMION ion optics, some ANSYS
Programming: Python, C/C++, Linux, LaTeX, HTML/CSS

Portfolio
www.dteal.org