Daniel Teal

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Research interests: nanomanufacturing, robots, self-assembly, computation.

Education

2019–now **University of California, Berkeley**.
PhD Electrical Engineering, MEMS, Pister Autonomous Microsystems Lab.

2015–2019 **University of Texas at Austin**.
BS Mechanical Engineering & BS Mathematics, 3.7/4.0.
nanopatterning, nanoenergy, materials science, dynamic systems, thermodynamics, organic chemistry, heat transfer, numerical analysis

2011–2015 **Liberal Arts and Science Academy High School**.

Experience

7/19–now **Pister Autonomous Microsystems Lab**, *PhD student*.
Building MEMS robots.

8/17–6/19 **Fan Nanomaterial Innovation Lab**, *research assistant*.
Automated nanowire assembly. Implemented computer vision-based detection of nanowires at ≈ 1 kHz and a custom FPGA-based programmable 4-channel arbitrary function generator for vastly improved electric tweezers control.

5/18–8/18 **NNCI iREU: Nano Functionality Integration Group**, *research intern*.
Studied neuromorphic computation in random PVP@Ag nanowire networks via computer simulations and physical experiment. Learned international research culture in Tsukuba, Japan.

6/17–8/17 **REU: Cornell NanoScale Facility**, *research intern*.
Created low power voltage rectifiers in the CNF fab. Performed mask design, photolithography, evaporation, graphene application, automated 200 MHz electrical tests, and UHF vibrometry.

9/15–now **UT Longhorn Maker Studios**, *student assistant*.
Trained students for and maintained laser cutters and 3D printers. Attained proficiency in rapid prototyping equipment. Proposed and ran large student hardware hackathon in collaboration with ME Undergraduate Advisory Board.

9/15–now **UT IEEE Robotics & Automation Society**, *Robotathon & webmaster*.
Organized the annual RAS introductory student robotics competition, Robotathon, while rewriting and maintaining the club website. Also built assorted small robots and large robotic couch.

8/17–now **UT ME Undergraduate Advisory Board**, *member*.
Proposed, designed, and ran the first UT engineering Createathon hardware hackathon with ≈50 students and multiple corporate sponsors in collaboration with the UT makerspace. Organized the second a year later.

11/16–5/17 **Zheng Research Group**, *research assistant*.
Reviewed plasmonic nanostructures.

11/15–11/16 **UT Advanced Manufacturing Center**, *research assistant*.
Designed and fabricated head impact metrology equipment for future research. Mounted 30 psi baseball air cannon to steel frame and SLS nylon dummy head. Automated measurements and tested high-speed camera.

6/15–8/15 **UT Applied Research Laboratories**, *intern*.
Acoustically detected unmanned aerial vehicles. Used digital signal processing to estimate range of common Phantom 3 pro quadcopter from analysis of its ultrasonic altitude finder and propeller noise under laboratory conditions.

9/11–6/15 **FIRST Tech Challenge Robotics Team**, *design & build lead*.
Lead team to become 2014-2015 world competition finalists. Designed in CAD and fabricated most of unorthodox leafblower-based wooden structure.

6/11–8/15 **DIY 3D Printer Design & Construction**, *hobbyist*.
Self-taught mechatronics by evolving generations of FDM machines.

Honors & Affiliations

2019 **NSF GRFP Fellowship**, *recipient*.

3/16–5/17 **UT Longhorn Maker Studios Club**, *president*.

9/15–5/16 **512 Hyperloop**, *member*.

2015 **ASME**, *student member*.

2017 **IEEE**, *student member*.

2016 **Tau Beta Pi**, *engineering honor society member*.

2016 **Pi Tau Sigma**, *mechanical engineering honor society member*.

2015 **National Merit Finalist**, *recipient*.

2013 **National Honor Society**, *member*.

Skills

Tooling Laser cutter, FDM 3D printer, cleanroom (var.), measurement (var.).

Domains Mechanics, electronics, computation.

CAD SolidWorks, Fusion 360, KiCad.

Languages Python; some Verilog, C/C++, LabVIEW, Java, HTML/CSS, TI-BASIC.

Software Linux, Windows, Excel, MATLAB, Word, LaTeX.