

Fiona R. Grant

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Education & Honors

Cambridge, MA Present	Massachusetts Institute of Technology PhD Candidate Department of Mechanical Engineering MathWorks Mechanical Engineering Fellowship, awarded 2020-21 Sloan Scholar, Alfred P. Sloan Foundation's Minority Ph.D. (MPHD) Program, awarded 2017-18
Sept 2019	S.M. in Mechanical Engineering, GPA: 4.9/5.0
June 2017	S.B. in Mechanical Engineering, GPA: 4.8/5.0
Feb 2017	Tau Beta Pi Engineering Honors Society

Research

Cambridge, MA Sept 2017-Present	MIT Global Engineering and Research (GEAR) Lab <i>Graduate Research Assistant</i> • Investigating the optimal sizing and operation of solar-powered, low-cost drip irrigation systems for small farms in the Middle East and North Africa (MENA) and Sub-Saharan Africa (SSA) using a custom MATLAB optimization design tool and field pilots in multiple locations.
Sept 2015-May 2016	<i>Undergraduate Research Assistant (UIROP)</i> • Worked to optimize performance of a solar electro-dialysis desalination system for villages in India
Southampton, UK June-Aug 2016	Fluid Structures Interactions Group (FSI), University of Southampton <i>MISTI Research Intern</i> • Investigated velocity control of a flapping foil system and developed a dynamic simulation in MATLAB • Configured linear actuator and ran open loop propulsion experiments with the physical prototype
Santiago de Chile June-Aug 2015	Enel Green Power: Chile and Andean Countries <i>MISTI Research Intern</i> • Investigated the effect of soiling (dust deposition) on solar plant production in the Atacama Desert • Developed and tested a MATLAB model that predicts plant losses due to soiling in this region

Leadership & Mentoring

Cambridge, MA July 2020-Present	MIT MechE Diversity, Equity, and Inclusion (DEI) Task Force <i>Graduate Student Member</i> • Worked with faculty, students, and staff on the task force to facilitate improvements related to DEI in MechE that address anti-Black racism and cultivate an environment in which all community members can thrive
Sept 2018-Present	MIT MakerWorkshop <i>Mentor</i> • Assisting users, giving training and maintaining machines in the MechE student-run machine shop
Sept-Dec 2019	MIT MechE Resources for Easing Friction and Stress (REFS) <i>Mentor</i> • Providing confidential peer support and conflict management to MechE graduate students
Sept-Dec 2016	2.008 Design and Manufacturing II <i>Teaching Assistant (TA)</i> • Designed and adapted hands-on, weekly learning modules to advance students' understanding of common manufacturing processes: machining, casting, sheet forming, injection molding, AM, electronics fab, and systems
Feb 2014-Jan 2016	2.009 Product Engineering Processes (Capstone) <i>Systems Integrator for Orange Team</i> • Co-led a product design team of 20 students in capstone mechanical engineering design course
	MIT Society of Women Engineers Board <i>Education Outreach Co-Chair</i> • Organized weekly STEM lessons and activities for local elementary and middle school students

Language & Technical Skills

Software: MATLAB, GitHub, SolidWorks, GAMS, Microsoft Office, LaTeX, Illustrator

Fabrication: 3D printer, laser cutter, lathe, mill, CNC router (all basic proficiency)

Publications

Grant, Sheline, et al., 2020, "Validation of an analytical model to lower the cost of solar-powered drip irrigation systems for smallholder farmers in the MENA region," *Conference Proceedings of ASME IDETC*, August 16-19, 2020. *In Review*.

Grant, 2019, "Development and validation of a systems-level cost optimization tool for solar-powered drip irrigation systems for smallholder farms," Master's thesis. Department of Mechanical Engineering, Massachusetts Institute of Technology.

Engelkemier, Grant, et al., 2019, "Feasibility of pairing a low-cost positive displacement pump with low-energy pressure compensating drip irrigation emitters for smallholder farms in Africa," *Conference Proceedings of ASME IDETC*, August 18-21, 2019.

Sokol, Grant, Sheline and Winter, 2018, "Development of a system model for low-cost, solar-powered drip irrigation systems in the MENA region," *Conference Proceedings of ASME IDETC*, August 26-29, 2018.