

# Ethan M. Shackelford

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## EDUCATION

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**Georgia Institute of Technology, Atlanta, GA** August 2018-May 2022

- 3.76 GPA; Candidate for Bachelor of Science in **Materials Science and Engineering**; Structural/Functional Conc.
- Recipient of Materials Science and Engineering General Scholarship
- *Related Coursework:* Polymers Sci. & Engr., Electrical, Optical & Magnetic Mat'ls, CS for Engr's, Thermodynamics, Organic Chemistry, Mat'ls characterization, Statics, Thermal Transport

**Eagle Scout**

January 2018

## EXPERIENCE

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**Nanohmics, Intern Austin, TX** May 2019-August 2019, June 2020-July 2020

- Helped to develop evaporating tracer particles for particle imaging velocimetry
  - Designed, tested, and validated system for aerosolization chamber
  - Selected stock components for use and modification in instrumentation
  - Synthesized nanoparticles in chemistry lab
  - Sampled and analyzed data from constructed chamber with spreadsheet software
- Built optical arrays for fluorescence and IR microscopy for use in silicon and biological research
- Applied Fabry-Perot interferometry to prototype a laser coherence detector being designed for SoC fabrication
- Designed laser array housing, InGaAs sensor mount, and other optomechanical components using SolidWorks
- Prototyped components and instruments on milling machine, 3D printer, and soldering station
- Developed navigation software for an autonomous robot platform using Python

**Advanced Graphene Battery Technology VIP Team, Researcher Atlanta, GA** January 2019-May 2019

- Learned about epitaxial graphene deposition process and graphene characterization
- Gathered knowledge on atomic-force microscopes, Raman spectrometers, and ellipsometers

**Scalable Thermal Energy Engineering Lab, Researcher Atlanta, GA** August 2019-present

- Designed and prototyped a galvanic reactor with sensitive temperature and flow monitoring using SolidWorks
- Built, programmed, and calibrated a peristaltic pump for careful flow rate tuning with Arduino

**Materials Innovation and Learning Laboratory, Volunteer Atlanta, GA** August 2019-December 2019

- Helped student and researchers to characterize material properties in a student-run space

## LEADERSHIP

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**Outdoor Recreation Georgia Tech, Member** October 2018-present

- Selected to participate in freshman leadership program to prepare for leadership within ORGT
- Volunteering for the sport of Mountain Biking; Vice President of the sport, representative on ORGT exec board

## PROJECTS

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**Personal Computer Build, Self-Assigned** August 2020-present

- Optimizing performance of self-designed PC for CAD software via system maintenance and integration

**Engineered Ceramics, Course Assignment** August 2020-September 2020

- Examined effects of fillers on ceramic mechanical properties via 3-point bend test and statistical analysis
- Explored applications of polyelectrolytes in colloid stability through rheology with a rotary viscometer

**Metalworking Shop, Self-Assigned** July 2017-present

- Built a personal space to blacksmith, bladesmith, and work metal out of scavenged materials

**Multipurpose Building Construction, Self-Assigned** May 2020-August 2020

- Designed and constructed a 150 sq. ft. building that converts between indoor/outdoor space with 25k budget

## SKILLS

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**Software/Programming:** SolidWorks, MATLAB, MS Excel, MS PowerPoint, MS Word, Python, EAGLE

**Technical:** Materials characterization (SEM, XFR, XRD, FTIR), mechanical testing, electrical testing (oscilloscope, multimeter, function generator), optical microscopy, 3D printing, machining, soldering, wet chemistry, blacksmithing, carpentry, metalworking, welding