

Allison Grey

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EDUCATION

University of Pennsylvania, School of Engineering and Applied Science, Philadelphia, PA

M.S.E. in Robotics; Cumulative GPA: 3.86/4.00

December 2019

B.S.E. in Mechanical Engineering and Applied Mechanics; Minor: **Computer & Information Science**

May 2019

Specialized Courses: Design of Mechatronic Systems, Advanced Mechatronics of Reactive Spaces, Integrated Computer-Aided Design, Design for Manufacturability, Feedback Control, UAVs, Rehabilitation Engineering and Design, Ergonomics/Product Design

Awards:

- William K. Gemmill Memorial Prize awarded for outstanding creativity in Senior Design Capstone Project
- 2nd Place out of over 80 teams in Cornell Cup 2019 Competition (a national engineering competition) for Senior Design Capstone Project
- 2019 American Society of Mechanical Engineers Award given in recognition of a student's outstanding efforts and accomplishments
- Honorable Mention in Penn SEAS-wide Senior Design Competition awarded for Senior Design Capstone Project

SKILLS

Mechanical: CAD (SolidWorks), Design For Manufacturability, Geometric Dimensioning & Tolerancing, Finite Element Analysis

Manufacturing: Computer-Aided Manufacturing, CNC and Manual Machining, Injection Molding, 3D Printing, Laser Cutting, Thermoforming

Programming: MATLAB, Java, C, Python, Visual Basic, OCaml, G-Code, LaTeX

Electronics: Circuit Design, Microcontrollers (Arduino, ESP32, Teensy), Soldering

PROFESSIONAL EXPERIENCE

The Boeing Company, Product Management Engineering Intern, *Renton, WA*

May 2019 – August 2019

- Investigated the capability of Model-Based Engineering to improve analytics and enable development of a digital twin
- Became a Subject Matter Expert of CAMEO to communicate software value to Boeing Global Services leaders
- Supported New Mid-size Airplane (NMA) aftermarket studies to drive airplane lifecycle value

Axon Enterprise, Inc., Mechanical Engineering Intern, *Scottsdale, AZ*

June 2018 – August 2018

- Performed R&D on the Conductive Electrical Weapons team for new product development of TASER 7
- Designed machines and tools for cartridge production to increase process efficiency and improve quality assurance
- Completed TASER accuracy lab testing and analysis and proposed modifications based on the results

Modix Modular Technologies LTD., Engineering & Programming Intern, *Tel Aviv, Israel*

June 2017 – August 2017

- Performed R&D for a small startup creating low-cost, large-scale, modular 3D printers
- Completed design of mechanical components and electrical architecture, prototyping, and troubleshooting
- Produced instruction documents for large-scale production and assembly

University of Pennsylvania, Teaching Assistant, *Philadelphia, PA*

June 2017 – Present

- Courses: Design of Mechatronic Systems, Mechanical Engineering Design Projects, Introduction to Mechanical Design
- Lead lab sections, teach weekly course sessions, manage student projects, create course material, hold office hours, etc.

PROJECTS

Senior Design Capstone Project

August 2018 – May 2019

- Designed and manufactured a jumping and wheeled robot designed to explore the subsurface of the Moon for NASA
- Served as Project Manager – set timeline, monitored team status and logistics, ensured deadlines were met, etc.
- Spearheaded mechanical design, CAD, manufacturing, assembly, and integration. Performed testing and validation
- Developed a cam-based mechanism that allowed the 9 kg robot to achieve jump heights of over 1 m in lunar gravity

Mechatronics and Robotics

2017 – 2019

- Created a robotic piano using solenoids and PCBs capable of playing songs via MIDI file. Achieved note accuracy within 5 ms
- Developed a weight-minimized, wirelessly-controlled "Battle Bot" capable of sensing and actuation. Placed 1st of 24 teams
- Engineered a remote manipulator device using potentiometers, motors, and a PID controller

Design and Manufacturing

2016 – 2018

- Designed and manufactured a Marchetti engine, custom chess set, and Stirling engine using CNC and manual mills and lathes
- Designed and manufactured an injection molding tool, performed draft analysis, and produced shots

LEADERSHIP

American Society of Mechanical Engineers – University of Pennsylvania Chapter, President

2016 – 2019

- Established a student mentorship program of over 100 students within Penn's mechanical engineering department
- Developed a Career Treks program to visit engineering companies in the Philadelphia area
- Planned multiple mechanical engineering networking dinners attended by over 80 students and professionals

Advancing Women in Engineering, Mentor

2016 – 2019

- Offered guidance and shadowing opportunities to high school girls interested in STEM and younger women in engineering

INTERESTS AND HOBBIES

American Sign Language, Community Service, Drawing, Painting, Puzzles, Reading, Traveling (Recently: Australia, Israel, Prague, France)