ALEXANDRA LEE

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EDUCATION

Massachusetts Institute of Technology – Cambridge, MA May 2025

Bachelor of Science in Mechanical Engineering; GPA: 4.9/5.0

- Activities: Gordon-MIT Engineering Leadership Program (2023-2024); Kappa Alpha Theta, President (2021-present); Chinese Student Club Executive Board (2024-present); Mechanical Engineering Honors Society (2023-Present); Camp Kesem (2022-present); Crew (2021-2022); Orientation Leader (2022)
- Relevant coursework: Electronics for Mechanical Systems, Engineering Leadership, Design and Manufacturing I, D-Lab Design, Dynamics and Control I, Fundamentals of Programming, Measurement and Instrumentation, Mechanics and Materials I, Precision Product Design, Product Engineering Process, Thermal Fluids Engineering, Tissue Biomechanics, Toy Product Design

EXPERIENCE

Medtronic – Lafayette, CO June 2024 – August 2024

R&D Engineering Intern, Surgical Innovations, Surgical Robotics

- Led the Articulation Tracking project, developing a method to accurately measure the articulation position of a robotic, articulating vessel sealer with a precision of ±0.5 degrees
- Engineered and iterated tracking fixtures using Creo to optimize the infrared (IR) tracker for better space utilization
- Conducted a comparative analysis of IR vs. CMM tracker methods and used MATLAB to mathematically compute accurate pitch and yaw in given instrument orientations from outputted data
- Delivered a presentation to VPs, managers, and peers on critical project insights and achievements

MIT Precision Engineering Research Group – Cambridge, MA February 2024 – May 2024

Engineering Intern

- Led the design of a device for the effective diagnosis and research of Popliteal Artery Entrapment Syndrome (PAES)
- Collaborated with an orthopedic surgeon, senior engineers, and graduate students in the rigorous design review process
- Co-authored "Design of a Device to Ease and Improve the Diagnosis of Popliteal Artery Entrapment Syndrome" highlighting the project's approach and design

Medtronic – Mystic, CT June 2023 – August 2023

Manufacturing Engineering Intern

- Enhanced manufacturing processes through continuous improvement strategies across all production areas
- Performed validations on tools and equipment for process improvement, enhanced efficiency, and increased yield
- Completed numerous investigations, corrective actions, and reviews of Non-Conformance Material Reports (NCMR)
- Utilized Minitab for statistical analysis, conducting multiple Design of Experiments (DOE) on equipment such as Alloyd Heat Sealers and Roller Presses

MIT Koch Institute for Integrative Cancer Research – Cambridge, MA May 2022 – May 2023

Engineering Intern, MIT Traverso Lab

- Designed, prototyped, and troubleshot mechanical intragastric balloons for potential bariatric use with a team of three interns
- Conducted in vitro experiments and in vivo swine studies to assess optimal balloon material, inflation sensor, Teensy/Arduino chips and code, and implementation of the device for future clinical use; analyzed data via MATLAB
- Publishing a paper detailing our device design and findings

PROJECTS

FlowScan – Cambridge, MA April 2024

- Designed an improved diagnostic method for Peripheral Arterial Disease (PAD) with a team of doctors and engineers
- Presented our device and strategic implementation plan at the MIT HackMedicine event

SKILLS

Engineering Skills: Microsoft Office, 2D and 3D Fusion360 CAD, Creo, Arduino, Agile PLM, Windchill PLM, Minitab

Languages: Conversational Mandarin Chinese, Python, C, MATLAB, Ladder Logic