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Ethan Chang

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EDUCATION

Massachusetts Institute of Technology (MIT) **Class of 2025**
GPA: 5.0/5.0

- B.S. in **Mechanical Engineering**, minor in **Design** and **Computer Science**
- Coursework: Design and Manufacturing, Robotics, Thermal Fluids Engineering, Control Theory, Design Technology and Techniques, Signal Processing, Circuits, Algorithms

TECHNICAL SKILLS

- **Machine Skills:** CNC Mill, Lathe, Waterjet, 3DP, Wood Working, Sheet Metal, LTspice
- **CAD/Simulation Software:** Solidworks, HSMworks (CAM), MATLAB, Simulink, FEA
- **Design Software:** Rhinoceros 3D, Photoshop, InDesign, Illustrator, Lightroom, Grasshopper
- **Programming:** C (Arduino/Teensy), C++, Python, ML/Statistics, HTML/CSS/JavaScript

EXPERIENCES

MIT Culpepper Lab for Mechanisms and Movements **September 2022 - Present**
Undergraduate Researcher

- Design patent and manufacture prototypes to improve precise fixtures in mechanical watches.
- Simulate material and flexure mechanisms in MATLAB to optimize bi-stable systems parameters.
- Design and implement experiments on impact withstand stability of micro-scale fixture systems.

Accelerometer Sensor Startup – Atomionics (Singapore) **May 2022 - August 2022**
Mechanical Engineering Intern

- Designed and manufactured compact active-vibration-control system on products. Implemented feedback filter and fine-tuned hardware to reduce vibration noise level by 30X.
- Prototyped 17 mounts, supporting structures, and enclosures for laser and cooling system.
- Designed, assembled, and tested cooling hardware loops for compact (1 m^3) laser systems.

MIT AGE Product Design for Seniors and Elderly **January 2022 - May 2022**
Undergraduate Researcher

- Designed 10 prototypes of supportive indoor footwear for customer's optimal ergonomic use.
- Hosted brainstorming sessions for ideation and compile results into three modeling constraints.
- Practiced industrial design standard sketching and analysis on forms and functions.

Quantum Optics Research Program (Taiwan) **September 2019 - March 2021**
Student Researcher

- Used Python to implement simulations of Cs atom interactions with continuous wave lasers.
- Designed and assembled circuit to regulate temperatures of laser cells within 0.1°C.
- Engineered Invar cell for Fabry-Perot interferometer to carry out feedback control.

SELECTED AWARDS/ACHIEVEMENTS

MIT 2.007 Competition First Place (MIT Robotics competition, required for Meche degree) **June 2023**
MakeMIT Make-a-thon First Place (MIT annual product/hardware hackathon) **Feb 2022**
International Physics Olympiad Rank 1 in Taiwan qualifier (canceled for COVID) **July 2020**
European Physics Olympiad Silver Medal (Personal World Rank 38) **June 2020**

CLUBS/INTERESTS

MIT Imobilare Breakdance Team Executive
MIT East Campus Dormitory Hall Chair
MIT Engineer Without Borders Member
Other Interests: Acoustic guitar, Oil painting