Gavin Lim

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Education

Cornell University Graduation Date: May 2029

BA in Computer Science, Minor in Mechanical Engineering

Relevant Coursework: OOP & Data Structures, Discrete Structures, Linear Algebra, Calculus II

Interests: Trophy Trucks, Acoustic Guitar, WRC Rally, Rock-Crawling, Cycling, Soul Music, Weightlifting

Research and Engineering Experience

Combat Robotics at Cornell Nov 2025 – Present

Mechanical Engineer *Ithaca, New York*

- Designed mechanical subsystems for a 3 lb full-body spinner battlebot, improving structural robustness and component integration through iterative chassis geometry refinement, mounting interfaces, and expansion mechanisms using Fusion.
- Evaluated drivetrain architectures, weapon mass symmetry, robot invertibility, and performance trade-offs under strict mass, and budget constraints using structured decision frameworks, including rapid design iteration and Pugh matrices.
- Contributed to *Project Real Steel*, a vision-based human–battlebot teleoperation system; implemented YOLOv11 pose estimation to map real-time human body motion from live video to robot control inputs, validating controller-free operation.

Princeton University - Acoustic Physics Lab May 2024 – Oct 2024

Undergraduate Researcher *Virtual*

- Developed mathematical simulations to model the impact of piano string stiffness on acoustic wave propagation, establishing that increased stiffness elevates fundamental frequencies, compresses wavelengths, and alters vibrational mode structure.
- Validated simulation outputs against published piano string acoustics data across realistic stiffness ranges (66–80 kN/m), analyzing deviations between theoretical and empirical trends and identifying increased variance at higher stiffness.
- Implemented numerical simulations and analysis pipelines using NumPy and Matplotlib; validated results against published piano string wave-speed data by generating frequency–wavelength and stiffness–wavelength plots with best-fit trendlines.

Digital Fabrication & Mechatronics - Harvard SSP May 2023 – Aug 2023

Mechanical Engineer *Cambridge, Massachusets*

- Developed PB, an electronic PianoBox that generates musical frequencies with push-buttons and integrated speakers; gained practical experience with electronic circuit design, micro-controller interfacing (Arduino) and C++ programming.
- Created kinetic sculptures, perpetual motion models, and custom molds, gaining proficiency in rapid prototyping and fabrication; operated CNC mills, 3D Prusa printers, and integrated end-to-end CAD/CAM workflows to refine prototypes.
- Studied foundational Newtonian mechanics, including kinematics, fluid mechanics, rotational dynamics, and harmonic motion; actively participated in discussions and gained extensive hands-on lab experience at the Harvard Science Center.

Leadership & Extracurriculars

TEDxYouth@JIS Aug 2022 – Mar 2025

President & Lead Organizer |Master of Ceremonies *Jakarta, Indonesia*

- Directed a 30+ member team to curate and host three official TEDx events — "Reframing the View," "Ripples in Time," and "Paradox of Choice" — successfully overseeing speaker recruitment, logistics, and seamless end-to-end event execution.
- Served as Master of Ceremonies, engaging audiences of 300+ attendees through public speaking, speaker introductions, and live event moderation, while actively fostering audience interaction and enhancing leadership and communication skills.

Science Society Aug 2022 – Mar 2024

Secretary & Lab Manager *Jakarta, Indonesia*

- Facilitated 20+ laboratory experiments across biology, chemistry, and physics, mentoring members in the rigorous application of scientific methodologies, critical data analysis, and structured problem-solving practices under supervision.
- Contributed to editing, synthesis, and methodological overview of 3 research papers by synthesizing experimental findings, conducting comprehensive literature reviews, ensuring the overall coherence and scientific rigor of each study consistently.

Skills

Technical Skills: MATLAB, Matplotlib, NumPy, Fusion360, 3D Printing (Prusa3D, Bambu), Arduino, YOLOv11

Languages: English, Indonesian, Java, Python, C++, PHP, SQL, HTML, CSS, Javascript, Git