Ethan Lin

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Education:

University of Illinois Urbana-Champaign — Champaign, IL

Bachelor of Science in Mechanical Engineering — August 2022 - Expected May 2026

Minor in Computer Science — GPA: 3.61/4.00

Relevant Coursework: Circuits, Dynamic Systems, Solid Mechanics, Fluid Dynamics, Mechanical Design, Signal Processing, Engineering Materials, Robotics, Artificial Intelligence, Discrete/Data Structures, Algorithms

Experience:

Projects — Champaign, IL

Mechanical Engineering & Robotics — August 2023 - Present

- Designed and constructed an inverted suspended rope-walking robot using a 4-leg Chebychev linkage
- Built lightweight, low-cost robot with rack-and-pinion transmission optimized for speed, strength and agility
- Implemented forward and inverse kinematics, OpenCV-based object detection, and autonomous pick and place tasks on UR3 robots using ROS motion control and Python.
- Designed and prototyped a 3D-printed assistive plug adapter to improve accessibility for individuals with motor impairments, through human-centered design, cost analysis, and manufacturability evaluation

Artificial Intelligence — January 2025 - Present

- Built a Naive Bayes sentiment classifier using bag-of-words, Laplace smoothing, and log probabilities
- Developed regression models and gradient-based inverse kinematics solvers using analytical methods
- Trained lexical embeddings with Skip-gram, noise contrastive estimation, and stochastic gradient descent
- Implemented HMM-based POS tagging with a baseline tagger and Viterbi decoder, optimizing emission, transition probabilities, and sequence decoding, trained transformer models for sequence-to-sequence NLP

Data Structures, Algorithms — August 2023 - May 2024

- Developed C++ applications using BFS, MinHash, and optimized data structures (linked lists, k-d trees, disjoint sets) for memory efficiency and nearest neighbor search.
- Proficient in dynamic programming, graph algorithms (BFS, DFS, shortest path, MST), greedy algorithms.

Baja SAE — Champaign, IL

Drivetrain Subteam, Suspension Subteam — January 2023 - September 2024

- Redesigned steering mechanism to improve Ackerman steering geometry of suspension
- Designed internal and external splines for gearbox, propshaft and hubs to optimize drivetrain manufacturing
- Researched various shock types for suspension vehicle dynamics optimization

National Taiwan University (NTU) Bio-Inspired Robotics Laboratory — Taipei, Taiwan

Research Intern — June 2023 - August 2023

- Designed and built a spring-actuated jumping robot with Fusion360; simulated robot motion in Webots, programmed control with C++ and Arduino; gained manufacturing experience (laser cutting, hand tools)

Leadership:

Taiwanese American Students Club — Champaign, IL

Community Chair — November 2023 - Present

- Coordinated events and activities fostering community engagement among 200+ students
- Managed team dynamics, delegated tasks, facilitated communication between members and executive board

Skills:

Programming Languages: C++, Python, Java, Matlab, Scheme, Kotlin, Rust

CAD: Fusion360, Autodesk Inventor, Creo, Onshape

Design/Manufacturing: 3D Printing, Rapid Prototyping, Machining (Lathe, Mill)

Interests: Robotics, Go (4 dan), Teaching Go (as tutor for 4 years), Chess, Biking, Tennis, Baseball