Bob (Jiachen) Wei

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Education

University of Michigan Aug. 2023 – May 2027

Bachelor of Science in Computer Engineering and Robotics *Ann Arbor, MI*

- **GPA**: 3.8/4.0
- **Course Highlight**: Data Structures & Algorithm, Embedded Systems, Signal Processing, Logic Design, Machine Learning, Applied parallel computing, Computer Organization, Computational linear algebra
- **Activities**: Triangle Engineering Fraternity - Executive Vice President, IEEE - VP of Communications

Experience

Tesla May 2025 – August 2025

Incoming Embedded Software Engineering Intern (Vehicle Firmware) *Palo Alto, CA*

Parallel Robotics (Medical Robotics startup) September 2024 – December 2024

R&D Engineering Intern *Ann Arbor, MI*

- Created and maintained robust documentation and assembly plans for complex mechatronic system, drastically lowering new engineer onboarding time
- Developed a high-performance embedded system using C on **STM32**, implementing a PID controller for motor control with sensor input filters and achieved 30% better motor tracking performance in real-world applications.
- Redesigned Central Electrical Control Board to intergrate ADCs and Encoder buffers enabiling scalable production and reducing manufacturing cost by 50%

ARCaD Lab at University of Michigan Robotics August 2023 – Present

Robotics Researcher *Ann Arbor, MI*

- Designed and built one of the fastest hopping robots in the world
- Co-authored paper on model based predictive control accepted in ICRA2025
- Developed **C++** based bipedal robot control Library including: Inverse Kinematics and dynamics, Trajectory Generation and Sensor Fusion Middle-ware for multi-dof legged robots enabling robots to do high speed jumping
- Created MATLAB simulations of a 2DOF dynamic hopping robot, utilizing the Spring Loaded Inverted Pendulum (SLIP) model.

Projects

Bilateral Teleoperating Robotic Manipulators | *C++* May 2024 – Auguest 2024

- Designed and manufactured robust 3DOF belt driven robotic manipulator in Solidworks
- Developed high frequency teleoperation control loop in **C++** capable of haptic feedbacks up to 10N
- Designed a custom CAN communication protocol, cutting unnecessary bytes by 35% and doubling the capacity of the CAN network from 3 to 6 devices.

Continuous Quadruped Jumping via Deep RL | *C++, Deep Learning* June 2024 – Present

- Trained an adaptive, pronking policy utilizing massively parallel end-to-end reinforcement learning in Nvidia IssacGym with randomized domains and complex training terrain
- Deployed policy successfully to the Unitree Go2 robot enabling dynamic continuous jumping

Stock Market Simulator | *C++* September 2024

- Developed a high-performance stock market simulator in **C++** to simulate trading operations, track trader activities, and analyze trade patterns
- Implemented an Order Matching Algorithm that managed and matched buy and sell orders using priority queues
- Tracked and reported individual trader performance including buy/sell count and net transfer values. Dynamically derived median prices and predicted optimal buy / sell times for profit maximization

Technical Skills

Languages: C/C++, Java, Python, CUDA, Matlab, Julia, Verilog
Developer Tools: Linux, Git, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse