Krishiv **Manyam**

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Projects

Intuitive Robotic Arm

C++, PYTHON, OPENCV

- Designed and assembled a robotic arm with 4 degrees of freedom using servo motors and Arduino.
- Developed an analytical inverse kinematics model and smooth motion control without the use of external libraries
- Designed a custom client-server architecture to offload expensive calculations to an external PC to work around the Arduino's low computing capability
- Implemented real-time hand-tracking control via MediaPipe and OpenCV to offer smooth and intuitive control.

Car Physics Engine

C++, SDL2

- Developed a custom physics engine featuring realistic rigid body dynamics, suspension geometry, and torque-based drivetrain simulation.
- Implemented accurate weight transfer, tire slip, and friction curves using a Pacejka-inspired model for high-fidelity handling.
- Optimized physics computations by minimizing per-frame updates and precomputing invariant values, achieving over 300 FPS with minimal loss in accuracy.
- Utilized SDL2 for real-time visualization and Eigen for efficient linear algebra operations in force and motion calculations.

Experience

Pringle Robotics   *Peoria, Illinois*

SOFTWARE ENGINEERING INTERN   *June 2023 - August 2023*

- Worked in a team of interns to automate the generation of microservices and their corresponding SQL libraries using C# and the .NET framework.
- Delivered an internal tool still in active use, significantly reducing development time and improving consistency across backend systems.
- Presented the completed system to over 25 employees, demonstrating its design, functionality, and long-term impact.

Education

University of California, Irvine   *Irvine, U.S.A*

B.S. IN COMPUTER SCIENCE   *Sept. 2025 - Current*

- Relevant Coursework: Data Structures, Discrete Math

Extracurricular Activites

FRC Robotics Team

ROBOTICS SOFTWARE TEAM CAPTAIN   *August 2022- May 2025*

- Led a team of 25 programmers in developing a complex autonomous routine, achieving less than 0.25 m drift over 50 m through the use of Kalman filters to fuse noisy odometry and computer vision data.
- Engineered a structured software curriculum and conducted weekly workshops on control systems, sensor fusion, and software architecture.
- Performed system identification and tuned precise PID controllers to ensure stable and accurate motion control.

Public Forum Debate Team

DEBATE TEAM CAPTAIN   *August 2022-May 2025*

- Ranked among the top 50 Public Forum debaters in California.
- Synthesized and organized over 200 pages of research materials monthly, enabling the team to construct data-driven, evidence-based arguments under time constraints.
- Frequently judged at tournaments and coached younger debaters

Skills

- **Programming Languages**: C++, Python, Java, HTML, JS, CSS, MATLAB

- **Frameworks & Libraries**: OpenCV, MediaPipe, SDL2, Eigen, .NET, Docker, Linux, Next.js, Tailwind CSS.