

Jacob McLaughlin

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Education

University of California, Riverside | BS in Computer Science – GPA: 3.90/4.00 Expected Jun 2028

Projects

LiDAR Autonomous Delivery Robot | ACM @ UCR: Forge – Riverside, CA Apr 2026 – Present

- Developing the autonomy stack for a **differential-drive** robot designed for food delivery, integrating **ROS-based** perception, planning, and control
- Implementing **A* path planning** to compute optimal, collision-free trajectories in real time
- Designing and integrating 2D LiDAR-based mapping and localization for environment perception

University Web Applications | ACM @ UCR: Spark – Riverside, CA Jan 2026 – Present

- Developing a **Next.js** web application for the UCR Chapter of University Blood Initiative, leveraging SSR (Server-Side Rendering) to reduce initial load times by **~17-22%** and improve **SEO visibility**
- Contributing to an **Agile** development environment within a **team of 10**, participating in weekly syncs, code reviews and sprint planning to meet project milestones
- Implementing a responsive, mobile-first UI using **Tailwind CSS**, improving usability across desktop and mobile devices for **50+ student members**
- Previously contributed to development of the UCR Archery Team web app in a similar team environment

AI Surveillance System | ACM @ UCR: Forge – Riverside, CA Jan 2026 – Apr 2026

- Built a real-time surveillance system using **Ultralytics YOLOv8** to detect people, vehicles, and objects, enabling automated monitoring in dynamic environments
- Designed **MQTT messaging** pipeline handling **30+ messages/sec** for real-time system updates
- Integrated **computer vision** pipeline with hardware prototypes, bridging AI models with physical systems

Terminal-Based Crossy Road | github.com/BacoJaco/terminalcrossy Sep 2025 – Dec 2025

- Designed a replica of Crossy Road with **3 team members**, leveraging object-oriented principles in C++ and utilizing the terminal for visuals
- Implemented agile methodologies using **Kanban boards**, **UML diagrams** and stand-up meetings to optimize development speed and team synchronization
- Implemented **CI/CD pipeline** using Google Test to ensure **99% build stability** during active development

Leadership Experience

Lead Computer Vision Engineer | ACM@UCR: Forge – Riverside, CA Apr 2026 – Present

- Led **10 members** across 5 sub-teams to deliver an AI-powered surveillance system, coordinating Python and Next.js development to launch a functional prototype **2 weeks** before the original deadline
- Mentoring team members on YOLOv8, **Python multithreading**, and MQTT, boosting technical proficiency
- Coordinated weekly meetings to delegate tasks, track progress, and resolve technical blockers

Lead Game Developer | GameSpawn – Riverside, CA Sep 2025 – Jan 2026

- Led a team of **3 developers** to design and build a multi-level **Unity game**, using Agile sprints and Git for version control, and set technical direction that enabled on-time delivery
- Developed **7 interactive levels** using C#, implementing core gameplay mechanics and navigation systems
- Designed the game to support both virtual reality (Oculus Rift) and PC platforms, ensuring cross-platform compatibility and **expanding the potential player base**

Skills

Languages: C++, Python, C#, Java, HTML, TypeScript, JavaScript

Tools & Frameworks: Git, React, Next.js, Node.js, Unity, Ultralytics, Google Test