

Ethan Gutierrez

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Education

Georgia Institute of Technology, Atlanta, GA (3.94/4.00 GPA)

June 2022 – May 2026

B.S. in Computer Science with a focus on Artificial Intelligence & the Internet of Things (IoT)

Experience

Software Engineer | LoanDock

July 2024 – Present

Typescript, React, Next.js, PostgreSQL, Express.js, Node.js, Tailwind, Docker, Git, RESTful API Design, GCP, LLM Integration, Retrieval Augmented Generation, Conversational AI, AutoGen Multi-agent orchestration, Model Context Protocol

- Built and launched an AI-powered mortgage prequalification tool, reducing loan officers' calculation time by 95% and increasing daily client throughput by 3x
- Extended the tool by designing and deploying a voice-based AI assistant that automated loan qualification analysis, processing 80+ financial variables in real-time
- Architected comprehensive mortgage calculation engine that processed \$1.1B in loan volume, supporting FHA/VA/Conventional/Non-QM products with real-time qualification analysis

Robotics Software Development Engineer Co-Op | Amazon Robotics

January 2024 – July 2024

Python, C++, ROS, Docker, Ubuntu, Bash, NVIDIA Jetson, Computer Vision (OpenCV), LiDAR Processing, GStreamer, LLM Integration, Speech-to-Text/TTS, Hand-Eye Calibration, Teleoperation Systems

- Engineered a low-latency video streaming pipeline for remote robot operation, optimizing bandwidth and real-time responsiveness
- Designed, implemented, and evaluated multiple teleoperation strategies for robotic remote manipulation, including VR, controller, and motion capture
- Integrated haptic feedback techniques conveying proximity and loss of tracking to the operator
- Modified LEAP Hand by integrating embedded cameras and redesigning control software to improve finger mapping, manipulation accuracy, and user experience
- Designed and integrated open-source multimodal AI systems leveraging Speech-to-Text, LLMs, and embodied AI, enabling single-operator robot control through natural language commands
- Implemented computer vision & manipulation techniques including hand-eye calibration, open-vocabulary object detection, and sampling-based grasping for autonomous manipulation

Projects

Open-Source Contributor | Cua - AI Computer-Use Agent Framework (YC W25) March 2025 – April 2025

Python, Typescript, Docker, Git, LLMs, Computer Tool Use, Ollama, REST APIs, Image Format Manipulation

- Implemented support for local AI models in the computer automation framework, enabling developers to run AI computer use agents without cloud dependencies

Software Developer | TBD Aerospace (Senior Design Project)

August 2022 - December 2023

C++, Java, Python, Git, Arduino, ESP32, PyGame, Gradient Descent, Resource Allocation Optimization, 3D Printing, Autodesk CAD

- Interviewed firefighting teams to validate market need for affordable aerial reconnaissance, translating requirements into technical specifications for custom UAV platform
- Engineered complete drone system from scratch: embedded C++ flight software, custom airframe, integrated avionics, and radio control—progressing from concept to flight testing
- Designed and fabricated custom airframe through 5+ iterations, using 3D printing and laser cutting to optimize weight and stability based on simulation and flight test data

Student Programmer | VEX & FRC Robotics

November 2018 - May 2022

Java, C++, Git, CAN, PWM, I2C, Hardware-in-the-Loop Simulation, Real-time Control Systems, Vision tracking & depth estimation

- Programmed VEX robot for World Championship competition, implementing custom image processing, IMU/encoder sensor fusion for field localization, and autonomous path planning in C++
- Built Java-based FRC robot software integrating open-source frameworks for vision processing and localization, coordinating between sensors, motors, and pneumatic systems

Research

Researcher | Machine Learning Safety Scholars

April 2022 – August 2022

- Engaged with state-of-the-art ML safety literature across adversarial examples, backdoor attacks, and alignment techniques through peer-led seminars and research
- Created technical documentation on ML model backdoors and trojan attacks for Center for AI Safety's open-source curriculum, contributing to public AI safety education

Leadership/Activities

Eagle Scout • Co-Founder (LoanDock, TBD Aerospace) • Open-source contributor • ML safety • Roboticist