Ethan Krol

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EDUCATION

University of Florida Honors Program   **Dean's List | GPA:** 4.0
Bachelor of Science in Computer Science, Herbert Wertheim College of Engineering   *Expected May 2026*
Minor in Astronomy, College of Liberal Arts and Sciences
- **Coursework**: Introduction to Bioinformatics, Computer Organization, Computational Linear Algebra

TECHNICAL SKILLS

Languages: Python, C++, Java, SQL, JavaScript, HTML, CSS, MATLAB, ARM Assembly
Frameworks and Technologies: Flask, REST APIs, React, ROS, Linux, Git, Vercel, SFML, Leaflet, SQLite3, Firebase

EXPERIENCE

Teaching Assistant for Discrete Structures   August 2024 – Present
UF Computer & Information Science & Engineering Dept.   *Gainesville, FL*
- Curated 120 practice problems used to independently teach weekly discussion sections for more than 50 students.
- Held weekly office hours available for more than 500 students, providing one-on-one assistance with algorithms and proofs.
- Graded over 500 exams, delivering detailed feedback to improve student performance in alignment with course objectives.

Research Assistant   January 2024 – Present
Trustworthy Engineered Autonomy Lab   *Gainesville, FL*
- Currently assisting in developing a missile guidance system using YOLOv3 and Gazebo, focused on disrupting object-detection techniques with adversarial patterns.
- Assembled and programmed 2 autonomous F1TENTH cars, using LiDAR data to adapt to dynamic environmental changes.
- Developed self-driving algorithms in Python, leveraging PID and other control methods to optimize vehicle performance.
- Containerized ROS2 nodes with Docker, streamlining remote operation of NVIDIA Jetson-based cars via SSH for seamless integration between ROS simulation environment and hardware.

PROGRAMMING PROJECTS

Gainesville Crime | *JavaScript/HTML/CSS, Flask, SQLite3, LeafletJS, Vercel*   July 2024
- Developed a highly customizable web application for visualizing crime hotspots in Gainesville on an interactive heat map.
- Architected RESTful APIs with Flask to efficiently query and process a SQLite3 database of 210,000+ crime incidents.
- Optimized and compared two sorting algorithms to enhance geographic data processing for real-time crime visualization.
- Integrated a flexible map interface, enabling users to tailor searches by specifying circular area, time frame, and location.

Gator Relator | *React, Firebase, Vercel*   April 2024
- A React-based networking platform aiming to connect UF students and alumni with common experiences and interests.
- Implemented direct messaging feature through a Firebase Firestore database, indexed by stored user authentication details.

Animal Care | *Unity, C#, OpenAI Chat GPT-3 API*   October 2023
- A 2-D style game leveraging Chat GPT-3.5 Turbo to comfort and educate children waiting to receive medical procedures.
- Employed prompt engineering to enable context-aware NPCs capable of generating specific dialogue for varying user details.
- Created custom music, sound effects, character sprites, scene transitions, and a tile map for a polished gameplay experience.
- Awarded **2nd place** overall at 2023 UF Dream Team Engineering Designathon.

Guitar Chord Predictor | *Python, OpenCV, scikit-learn, MediaPipe API*   June 2024
- Utilized MediaPipe hand recognition to train a Random Forest model, recognizing eight guitar chords with ∼95% accuracy.
- Wrote a Python script to automate data collection by capturing, processing, and storing images with OpenCV.

CAMPUS INVOLVEMENT

University of Florida Engineering Ambassadors   January 2024 – Present
Gainesville, FL
Leadership Chair   *April 2024 – Present*
- Arranged bi-weekly general meeting segments for industry and academic leaders to provide curated insights and guidance.
- Empowered 50 organization members by hosting professional development events and public speaking opportunities.
- Directed tours of the College of Engineering for audiences of over 60 prospective students, high-level donors, and faculty.
- Assisted in planning and facilitating Gator Engineering Experience Day for 250 prospective students.

HONORS AND AWARDS

Addison Pound Engineering Scholarship, Pediatric Cancer Relief Fund Scholarship, Undergraduate Research Scholars Program