Camilo Alvarez-Velez

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EDUCATION

University of Central Florida | *GPA 3.6 | B.S. Computer Science | Expected May 2025*

Awards: Florida Academic Scholars, Dean's List 2024, 2023, 2021, UCF Computer Science Foundation Exam: Scored 90 (1st attempt)

Relevant Courses: Software Engineering, Data Structures and Algorithms 1 & 2, Artificial Intelligence, Machine Learning, Robot Vision, Object-Oriented Programming, Discrete Math, Matrix & Linear Algebra, Systems Software, Computer Security

Activities: KnightHacks, SHPE, Major League Hacking

SKILLS

Programming Languages: C#, Java, C, JavaScript, TypeScript, Python, PowerShell, Bash, SQL, XAML, HTML, CSS

Frameworks & Libraries: React, React Native, .NET, Node.js, Express.js, REST API, Flask, FastAPI, MySQL, SQLite

Tools & Technologies: Git, Azure, Version Control, Agile, Jira, UNIX/Linux, CLI, Visual Studio, Visual Studio Code

Languages: English (Native), Spanish (Native)

Experience

Undergraduate Research - ADC Lab | *React, Node.js, Docker, SQLite | November 2024 - Present*

- Led full-stack development and containerization of a scalable web-based simulation game for time-critical decision-making research.
- Developed predictive analytics to monitor decision patterns, enabling visualization of metrics across 1,000+ user records.
- Independently dockerized the entire project and deployed a modernized site replacing the old version, boosting user engagement by 50%.
- Captured and analyzed 100K+ data points, including mouse movement and heuristics, **yielding 30+ key insights** into decision-making behaviors

Software Development Intern - Thermo Fisher Scientific | *.NET, C#, PowerShell | May 2024 - August 2024*

- Optimized Attune Xenith Spectral Flow Cytometer to handle 10,000+ real-time events/sec, boosting analysis speed and accuracy.
- Created several Azure DevOps PowerShell tools reducing code duplication growth by 20% monthly and consolidated 50,000+ lines.
- Enhanced performance with JetBrains profilers, **cutting CPU usage by 5%, GC wait by 30%**, and raising event acquisition by 10%.
- Developed a universal Undo/Redo system, safeguarding critical sample data and potentially **saving labs thousands of dollars.**
- Resolved 20+ feature and bug tickets using Agile methods, enhancing software stability by 20% and reducing system failures.

PROJECTS

Ladybug - GUI Bug Localizer | *Node.js, Express.js, Python, Flask, PyTorch, UniXCoder | August 2024 - Present*

- Engineered a GitHub bot integrating Text-Retrieval and novel GUI data techniques to find bugs, increasing **Hits@10 by 13-18%**.
- Automated the ranking and reporting of 10 high-probability buggy files, **reducing bug localization time by more than 90%**.
- Architected an end-to-end pipeline transforming GitHub reports into ML embeddings, processing 100+ asynchronous requests and improving system efficiency by 30% with parallelization.

Credit Shield - KnightHacks 2024 | *Python, Scikit-learn, FastAPI, Ethereum, Solidity | October 2024*

- **Won 1st Place** with an AI-driven financial safety system trained on 100K+ transactions identifying fraud in real time.
- Deployed Ethereum smart contracts for an open decentralized ledger, enhancing data security and reducing detection time by 40%.
- Engineered a Random Forest model and synthetic data generator, **achieving 95% fraud detection accuracy**.
- Designed a real-time frontend visualizing fraud alerts supporting more than 10K+ transactions, improving user trust and transparency.

Town Trekkr - Guess, Learn, Connect | *React, Node.js, Express.js, MongoDB | February 2024 - April 2024*

- Created a GeoGuessr-inspired game for local communities that **supported 500+ concurrent players** seamlessly.
- Implemented game system and GPS geolocation features maintaining **5-meter accuracy for 1000+ user-submitted images**.
- Designed and developed 20 responsive pages, including interactive community features for boundary setting and image contributions.

Pulse Pal - Hacklytics 2024 | *React Native, Python, OpenCV, Flask, rPPG | February 2024*

- **Won 3rd place** in the Elevance Healthcare Challenge by creating a mobile ML-powered clinical assistant and pre-visit screening system.
- Integrated rPPG for extracting health data from facial scans and an AI chatbot, **reducing EHR processing time by 50%** .
- Built a backend processing 10+ real-time data streams, reducing transmission latency by 80% and enabling dynamic facial tracking.