George Zhao

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EDUCATION

University of Central Florida — Orlando, FL
Bachelor of Science in Computer Science — *Expected May 2029*
Organizations: Competitive Programming Team, Knight Hacks, Hack@UCF
GPA: 4.0/4.0

EXPERIENCE

Simulation & Modeling Engineering Intern — December 2025 - January 2026
Institute for Simulation & Training — *Orlando, FL*
- Designed and developed a real-time cyber–energy training simulation in collaboration with the U.S. Department of Energy and Oak Ridge Enhanced Technology & Training Center (ORETTC).
- Implemented a React + TypeScript front-end with modular simulation logic to model grid stability, cryptographic trust, and operator workload metrics.
- Built a live telemetry dashboard visualizing 4+ operational metrics with ∼1 Hz update rates and a rolling 60–120 second analysis window.

LLMs/Embedded Systems Research Assistant — September 2025 – Present
University of Central Florida — *Orlando, FL*
- Investigated the impact of security attacks (e.g., memory bit-flips, data corruption) and soft errors on the accuracy and reliability of llama.cpp-based LLM inference on embedded platforms, analyzing over 1,000+ fault injection scenarios.
- Explored new security attack vectors targeting LLM inference on embedded systems, identifying 3 major vulnerability classes that caused up to 15% performance degradation and 12% prediction errors.
- Developed and tested fault-tolerance and security mitigation techniques, achieving up to 25% improvement in model robustness and reducing error rates from 12% → 3% under simulated hardware faults.

Web Developer for PTA Website — June 2025 – Present
Frazer School — *Gainesville, FL*
- Engineered comprehensive data scraping scripts to automatically gather accurate information on 50+ upcoming academic competitions weekly and integrate it into an Outlook calendar, reducing manual scheduling effort by 90%.
- Collaborated with a team of five to develop an interactive, user-friendly website, serving over 2,000+ active users with real-time competition updates.
- Deployed the website on Microsoft Azure, enabling 24/7 uptime, automated updates, and continuous monitoring of event data, improving reliability and user engagement metrics.

PROJECTS

Zero Panic in Movement | *Flutter, Dart, ROS, Python, Flask, Gemini* — October 2025
- Won 1st place in the Pheratech Systems ROS2 Autonomy Challenge at KnightHacks VIII Hackathon.
- Collaborated on a ROS swarm robotics system with two autonomous robots sharing learned routes, cutting pathfinding time by 30% and collision risk by 25% in simulated fire-escape scenarios.
- Developed UI dashboards visualizing pathfinding, sensor data, and learning progress with latency under 100 ms.

Mu Alpha Theta Bot | *Python, Flask, MySQL, Google Cloud* — October 2024 – Present
- Designed and developed a Flask-based application using Python and MySQL to help over 3,000+ students in the Mu Alpha Theta Honor Society prepare for math competitions.
- Built a categorized question bank and command-based interface, enabling users to request problems by topic and difficulty, improving accessibility and engagement.
- Implemented a real-time leaderboard system to track scores, rankings, and progress, boosting user participation by 40%.
- Deployed and maintained the application on Google Cloud, ensuring 24/7 uptime and scalable performance.

SpiritTracker | *C#, .NET, WPF, PostgreSQL* — May 2025 - Present
- Developed a full-featured event management desktop application, enabling schools to track and manage 2000+ student events annually with improved efficiency.
- Designed a responsive WPF UI, reducing task completion time for administrators by 25% and improving overall usability.
- Integrated role-based access control to enhance data security and ensure proper user permissions.

BusyPartner | *Java, phpMyAdmin, MySQL* — October 2023 - June 2024
- Spearheaded development of a cross-platform desktop application used by 400+ students to help schools identify and connect with local non-profit business partners, increasing partnership outreach.
- Implemented local caching and optimized database queries, reducing data retrieval time by 40% and improving overall application responsiveness.
- Utilized Java Swing framework to develop client-side graphical components and phpMyAdmin to store user information and preferences.

TECHNICAL SKILLS

Languages: Python, Java, C, C++, C#, JavaScript, TypeScript
Technologies: React, Node.js, Flask, .NET, WPF, Java Swing, JavaFX, Databases (MySQL, PostgreSQL)
AI/ML: Google Gemini, PyTorch/ExecuTorch, llama.cpp, MLC LLM
Developer Tools: Git, Google Cloud Platform, Microsoft Azure, Amazon Web Services, VS Code