Joseph Farkas

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EDUCATION

Georgia Institute of Technology Atlanta, GA
Bachelor of Science in Computer Science, Devices and Intelligence *Expected May 2027*
Minors in Robotics and German *GPA: 4.00*
- Relevant Coursework: Data Structures and Algorithms, Objects and Design, Multivariable Calculus

PROFESSIONAL EXPERIENCE

UX Assistant Aug 2025 – Present
Georgia Tech PACE High Performance Computing Center *Atlanta, GA*
- Supporting roughly 5,000 researchers with incident triage across high-performance computing systems
- Handling 20+ tickets weekly, resolving issues independently using Linux tools and debugging skills

Software Intern Aug 2024 – May 2025
Viasat Inc. *Duluth, GA*
- Developed C/C++ firmware and Typescript frontend for prototype three-axis satellite antennas
- Built algorithms for analyzing signal quality and atmospheric modeling; integrated CI pipelines for validation

Autonomous Systems Lead, Software Mentor Oct 2021 – Present
North Gwinnett Robotics *Suwanee, GA*
- Mentoring ˜15 students with limited experience to use C++ to process sensor input and control robots over CAN
- Integrated localization using computer vision (Apriltag fiducials) to power fully autonomous scoring
- Implemented on-the-fly pathfinding and obstacle avoidance using A* with kinematic heuristics and telemetry
- World Competition Autonomous Award, Divisional Champions. Ranked #1 globally for autonomous performance

ACTIVITES

Guidance, Navigation and Control Team Aug 2025 – Present
Propulsive Landers @ Georgia Tech *Atlanta, GA*
- Applying PID+LQR and nonlinear MPC to optimize rocket's fuel usage in trajectory for powered descent
- Plotting simulated flights in MATLAB for validation and to inform propulsion and avionics

RoboCup: Autonomous Software Team Aug 2025 – Present
RoboJackets @ Georgia Tech *Atlanta, GA*
- Building multi-agent pathfinding, obstacle avoidance and task allocation in C++ for 6v6 robot soccer
- Strengthening ROS stack to interface with telemetry, vision, and low-level control systems

PROJECTS, PRESENTATIONS & HACKATHONS

DocDoctor: Intuitive CSM | *MongoDB Track Winner, Google Cloud Runner-up: AI ATL* | **Devpost** Nov 2025
- Built website to transcribe customer calls in real-time and provide intuitive documentation lookup
- Implemented Cobweb for clustering documents by semantic relevance

Holonomic Auto-Alignment using CV Localization | *C++, Java, ArUco* Aug 2023 – May 2025
- Applied second-order kinematics and jerk limiting to replicate S-curve profile for discretized holonomic drive
- Fused CV estimates from fiducials with filtered odometry using a state-space model for real-time robot location
- Allowed competition robot to align to any scoring position with < 1cm accuracy regardless of starting state

Foundations of Autonomous Programming | *Georgia FIRST Robotics Symposium* Sept 2024
- Presented at statewide symposium on methods for teaching autonomous programming to high school students

Natural ASL Communication | *Gwinnett Science, Engineering & Innovation Fair* Feb 2024
- Interpreted 40 ASL phrases and 5 moods using Google Mediapipe and CNNs for natural English translation

TECHNICAL SKILLS

Computer Languages: Python, Java, C, C++, JavaScript, TypeScript, HTML/CSS, Dart, MATLAB, SQL
Frameworks & Libraries: TensorFlow, YOLO, Jupyter, ROS, Matplotlib, OpenCV, ArUco, React
Developer Tools: Git, Linux, Docker, Google Firebase, Android Studio, AWS, Jira
Hardware Experience: Fusion 360, SolidWorks, Autodesk Inventor, 3D Printing, CAN Network, CNC Operation