

# Joseph Farkas

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## EDUCATION

### Georgia Institute of Technology

Bachelor of Science in Computer Science, Devices and Intelligence  
Minors in Robotics and German

Atlanta, GA  
Expected May 2027  
GPA: 4.00

- Relevant Coursework: Data Structures and Algorithms, Objects and Design, Multivariable Calculus

## PROFESSIONAL EXPERIENCE

### UX Assistant

Georgia Tech PACE High Performance Computing Center

Aug 2025 – Present  
Atlanta, GA

- Supporting over 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

Viasat Inc.

Aug 2024 – May 2025  
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

North Gwinnett Robotics

Oct 2021 – Present  
Suwanee, GA

- Mentoring 15 students with limited prior experience in utilizing C++ to process sensor input and control robots
- 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

## ACTIVITIES

### Guidance, Navigation and Control Team

Propulsive Landers @ Georgia Tech

Aug 2025 – Present  
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

RoboJackets @ Georgia Tech

Aug 2025 – Present  
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

**CAD/CAM:** Fusion 360, SolidWorks, Autodesk Inventor, 3D Printing, CNC Operation