

Joseph Farkas

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EDUCATION

Georgia Institute of Technology

Atlanta, GA

Bachelor of Science in Computer Science, Devices and Intelligence (International Plan)

May 2027

Minors in Robotics and German

GPA: 4.00

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

EXPERIENCE

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 real time powered descent
- Porting on-the-fly convexification algorithm from Python to Rust for on-device trajectory replanning

RoboCup: Autonomous Software Team

Aug. 2025 – Present

RoboJackets @ Georgia Tech

Atlanta, GA

- Developing multi-agent pathfinding, obstacle avoidance and task allocation in C++ for 6v6 robot soccer
- Building ROS stack to interface with telemetry, vision, and low-level control systems

UX Assistant

Aug. 2025 – Present

Georgia Tech PACE Supercomputing Center

Atlanta, GA

- Performing incident triage for researchers using high-performance Debian computing systems

Software Intern

Aug. 2024 – May 2025

Viasat Inc.

Duluth, GA

- Developed C/C++ firmware and Typescript frontend for prototype three-axis satellite antennas
- Improved responsiveness of ephemeris loading by 90% through multithreading and upgraded XML search
- Built algorithms for analyzing signal quality and atmospheric modeling
- Assembled and wired rig to test cable fatigue over 100,000 accelerated cycles

Software Department Lead

Oct. 2021 – May 2025

North Gwinnett Robotics

Suwanee, GA

- Trained 15 students with limited prior experience in utilizing C++ to process sensor input and control robots
- Designed and manufactured robot over eight weeks, coordinating to manage six-figure finances
- World Competition Divisional Champions & Autonomous Award, 3x State Champions

PROJECTS

"Spotify Wrapped" App | *Java, Android Studio, Agile Developments, Google Firebase*

Aug. 2025 – Present

- Developing an Android app allowing users to create a custom and creative representative of their listened songs
- Building in a team of 6 using Agile Sprints to control scope, manage deadlines, and assign responsibilities
- Implementing Google Firebase for user authentication and data storage, as well as MaterialUI for intuitive design

Natural ASL Communication | *Python, Docker, TensorFlow, Jupyter, OpenCV*

Sep. 2023 – Feb. 2024

- Applied action-based convolution neural networks on Google's Mediapipe holistic landmark model for OpenCV
- Interpreted 40 ASL phrases and 5 moods using facial expressions for natural English translation and emotive TTS
- Won second place at regional science fair

Holonomic Auto-Alignment using CV Localization | *C++, Matlab, 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
- Developed a heuristic for scaling weight of vision data and latency compensation
- Allowed competition robot to align to any scoring position with < 1cm accuracy regardless of starting state

TECHNICAL SKILLS

Computer Languages: Java, Python, C/C++, Rust, JavaScript, HTML/CSS, Dart, Matlab

Frameworks & Libraries: ROS, React, Node.js, JUnit, Flutter, OpenCV, ArUco, Jupyter, pandas, Matplotlib

Developer Tools: Git/GitHub, Linux, Docker, Google Firebase, Android Studio, VS Code, Visual Studio, IntelliJ

CAD/CAM: Fusion 360, SolidWorks, Autodesk Inventor, 3D Printing, Laser Cutting, CNC Milling

Foreign Languages: German (Intermediate - B2), Hungarian (Native)