Alfonso Lagares de Toledo

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EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY, College of Engineering **Expected:** *May 2025*
Bachelor of Science in Aerospace Engineering
- Relevant courses on Avionics integration, Guidance and Control & Dynamics

TECHNICAL SKILLS

Software: Simulink, Autodesk Inventor & CFD, SolidWorks, Altium, Ansys Fluid, LaTeX
Languages/Tools: Python, MATLAB, JavaScript, C, Java, Git
Other skills: Machine/Deep/Reinforcement Learning (Sklearn & Keras in Python), Spanish, Lathe & Mill machining

EXPERIENCE

Georgia Tech Experimental Rocketry *Aug 2021 - Present*
Avionics Lead
- Lead a team of 15 students and $60,000 budget to build the complete avionics stack for a two-stage rocket
- Designed, built, and programmed a custom flight computer to control the vehicle and record attitude and position data
- Managed the integration of avionics systems with the rest of the vehicle, ensuring system requirements were met
- Interfaced with over 20 external part providers to ensure ICs were procured at a timeline manner
- Wrote FAA COA application to establish a no-fly zone over our launch zone in the Mohave Desert
- Ensured system resilience and safety in the event of sensor or mechanical failures using Kalman filters
- Mentored students in the use of Altium and C to build their own avionics systems

Intro to MATLAB (CS1371) *January 2022 - Present*
Teacher Assistant
- Prepared material and lead recitation sessions, providing students with 1-on-1 help
- Proctored and grade exam sessions of ~250 students
- Wrote aid packages and documentation for students to understand the class material

AI Saturdays *Sep 2018 – May 2022*
Lecturer
- Gave lectures on Data Analysis, Random Forests and Neural Networks to post-graduate students
- Mentored student projects where AI was applied to medicine, engineering, and other related fields

RESEARCH

Agile Communication Architectures *Aug 2022 – Present*
Research Fellow
- Designed localization system based on time-of-flight measurements of Wi-Fi packets
- Developed methods to reduce noise from multi pathing and interference using OFDM properties
- Proposed simulation method to collect channel-state data, saved $15,000 and 50 work hours by eliminating the use of high-end software defined radios

Advanced Systems Design Laboratory *January 2022 - Present*
Undergraduate Research Assistant
- Developed systems engineering approach to the establishment of long-term lunar outposts
- Analyzed requirements for future lunar missions, created database system to store capabilities and stakeholder profiles
- Built a data-powered dashboard for geo-located scenario visualization, enabling war-gaming at the mission event level