

Matthew Ryan Altis

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Education

Georgia Institute of Technology

Bachelor of Science in Aerospace Engineering, GPA 3.53

Atlanta, Ga

Aug 2018- Dec 2021

Work Experience

Amazon Prime Now Associate

May 2020-Aug 2020

- Prepared Amazon orders for delivery and pickup, consistently sustained performance of 100 items per hour
- Resolved customer issues and concerns through frequent communication, identified and corrected erroneous orders while offering item replacement options to meet same-day-delivery deadlines

Projects

Unmanned Combat Air Vehicle

Jan 2021-May 2021

- Executed complete design for Unmanned Fighter Aircraft that serves to reduce cost limitation on the fleet size of modern fighters while meeting 500-mile combat mission requirement with performance constraints and a given payload of 6 AIM missiles
- Applied Iterative design process to weight sizing and thrust/wing loading, optimized initial sizing through examination of trade studies across baseline design parameters to attain takeoff weight below 25,000 lbs
- Developed mass property analysis with respect to payload, fuel, avionics, and lifting surfaces to drive design choices for center of gravity, neutral point location, and stability characteristics of the vehicle
- Final prototype cost estimates 330% cheaper than F-22 and capable of 9.75 flight hours per F-22 hour, demonstrated 500+ mile combat radius and an X-Band stealth profile comparable to the F-35

eVTOL System Design and Research Study

Aug 2020-Dec 2020

- Produced marketable program to facilitate and expedite development of an Urban Air Mobility company, including initial concept of operations, configuration selection, functional architecture, product breakdown structure, and program development timeline
- Optimized technical and logistic system design parameters across broad design space, documented risk analysis for the purpose of implementing design margins in both vehicle configuration and timescale of program operations
- Verified feasibility and potential implementation of eVTOL program in major US cities by 2024 with vehicle design capable of a passenger volume of 150+ per vehicle-day

Wind Turbine Site Feasibility Analysis

May 2021-Aug 2021

- Developed potential wind farm site for Southern Australia to outcompete local energy providers and meet regional renewable energy program goals
- Created design configuration for 6-Megawatt onshore wind turbine, simulated blade performance using WT Perf software and performed cost analysis to optimize design parameters such as hub height, power generator, and gearbox
- Achieved both economically and environmentally feasible large-scale turbine farm design capable of producing energy at 8 cents/Kilowatt hour to a population of over 1.3 million people, offering a sustainable and cheaper alternative to gas power

Hypersonic Flight Program

May 2021-Aug 2021

- Produced MATLAB program to analyze aerothermodynamic properties of hypersonic vehicle, which provide insight into preliminary vehicle geometry design and heat shield configuration
- Implemented functionality for user-input vehicle geometry and flight conditions, program output included downstream shock conditions, aerodynamic forces, and thermodynamic heating properties
- Troubleshooted program errors, documented output values within 4% margin of error from equilibrium code solutions through the incorporation of numerical solution methods within the code

Orbital Location Program

Sep 2020-Dec 2020

- Developed MATLAB program to input the location and velocity of the ISS from known radar station and convert between orbital coordinate systems for computation within 3% error of solution
- Designed solution method to consider variables such as year, date, time of day, and time zone to account for range of test inputs that can include any location on earth
- Incorporated variety of user-inputs, including radar location and custom time span, and program output all 6 primary orbital elements as well as new position and velocity vectors after a specified elapsed time input

Model Rocket

Sep 2019-Nov 2019

- Simulated and manufactured rocket using kit and custom 3D printed parts, allowing for storage and propulsion of given payload to a desired launch height of 100 ft
- Undertook further modification of rocket components using welding and machining to achieve structural consistency with rocket model used in the simulation tests
- Coordinated and performed rocket launch test to verify less than 2% error between the simulation prediction and actual test launch apogee

Mars Rover

Jan 2020-May 2020

- Planned preliminary Mars terraforming rover design process through the creation of dimensioned engineering drawings for part sizing and integrating interlocking components across 6 vehicle subsystems, including chassis, mobility, and thorium reactor
- Established intermediate project deadlines and planned regular team meetings to ensure consistency across each member's CAD components and assigned new tasks based on the progress of each individual subsystem
- Constructed SolidWorks components for mobility subsystem, managed 150+ individual CAD components and undertook assembly of the rover, removed dimensional ambiguities between drawings and the final prototype to improve manufacturing capability

NTSB/FAA Case Study Project

May 2021-Aug 2021

- Examined the role of regulatory agencies in the treatment of safety-critical aircraft systems using case studies on multiple major commercial transport airline accidents
- Analyzed and integrated data from multiple NTSB accident reports to communicate the technical failures behind each accident and the operational/managerial shortcomings that allowed accidents to occur
- Established 10+ process improvements based on the certification issues regarding transport aircraft, extended learning outcome from these incidents to regulatory agencies such as the FAA

Skills

Programming- MATLAB, Simulink, Python, JavaScript, HTML, CSS

Software- SolidWorks, Catia, LabView, Microsoft Office Suite, Mathematica, Open VSP

Hardware- Analog Circuits, Oscilloscope, Multimeter, Strain Gauge, 3D Printing, Wind Tunnels, RC Plane Design

Leadership/Extracurriculars

Recording Studio/Band Founder

2015-Present

- Founded and played drums for multiple bands, performing shows across multiple cities and states while maintaining 2000+ monthly listeners on streaming platforms such as Spotify
- Designed and helped construct home recording studio, including wiring across both analog and digital recording equipment, incorporated acoustic treatment in studio area to improve sound quality
- Run personal recording studio to track and produce multiple albums, EPs, and singles, for my own bands and other artists, consistently completing high quality sound engineering for final product on tight release schedule