

Reuben Abraham T. Georgi

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Personal Page: <https://rageorgi.github.io/>

Objective: Graduate student majoring in Autonomy and Control, seeking a position to apply and develop my technical skills and make significant contributions in the process.

EDUCATION

Purdue University

Master of Science in Aeronautics and Astronautics (MSAA)
GPA, Scale of 4 - 3.54

West Lafayette, Indiana
May 2021

Punjab Engineering College

Bachelor of Technology (B.Tech) in Aerospace Engineering
CGPA, Scale of 10 - 7.70

Chandigarh, India
October 2019

WORK EXPERIENCE/INTERNSHIPS

AbbVie Inc. (Contractor through HireGenics)

Research Analyst/ Summer Intern

Remote Assignment
July-September 2020

- Conducted CFD simulations in M-Star CFD and Ansys for the hydrodynamics characterization of drug dissolution
- Performed post-processing and analysis of results obtained from simulations using Paraview

Helicopter Division, Hindustan Aeronautics Limited

Intern

Bangalore, India
January-May 2018

- Utilized mathematical modeling to predict the response of an isolated blade and the performance of an isolated rotor
- Engaged with industry professionals to gain insight into the helicopter design process

SPACE lab, Khalifa University

Intern

Abu Dhabi, U.A.E
May-July 2017

- Investigated autonomous control of a Tetrix ranger using MATLAB and Arduino
- Operated a Pumpkin CubeSat kit using MPLAB

SELECTED PROJECTS

Reachability Analysis for Pursuer-Evader Dynamic Games (Group project)

- Computed backward reachable sets for dynamic games involving a superior evader using the Level Set Toolbox on MATLAB
- Investigated the impact of the number of pursuers and their speed ratio on the backwards reachable set

Selection of Quadcopter components using a Genetic Algorithm

- Formulated a multi-objective problem to minimize cost and weight of a quadcopter
- Generated Pareto frontier and identified best combination of components from available options

Experimental means to measure flow parameters and thrust of a propeller (Group project)

- Designed and fabricated the setup using Aluminum sheets
- Obtained values of thrust and velocity variation for different RC propellers

Development of Porkchop plots for interplanetary mission planning

- Considered mission from Earth to Ceres for different combinations of launch and arrival dates
- Obtained contours of characteristic energy (C3) and Delta-v (Δv) using MATLAB

Genetic Algorithm Based Approach for Path Planning in a Static Environment

- Utilized a point-based approach to generate the shortest collision free path for an agent
- Examined the effects of varying the type of crossover operation on the solution

TECHNICAL SKILLS

- **MATLAB:** (Utilized during) Coursework, Projects
- **Python:** Coursework, Projects
- **C++:** Coursework
- **CSS, HTML & JavaScript:** Personal web page
- **ANSYS:** Coursework, Internship
- **Simulink:** Coursework
- **ROS:** Project
- **Arduino:** Projects, Internship

RELEVANT COURSEWORK

University:	Lumped System Theory Multi-Agent Systems and Control Hybrid Systems: Theory and Applications	Engineering Analysis and Design Applied Optimal Control and Estimation Numerical Methods in Mechanical Engineering
Online:	"Introduction to Programming with MATLAB" by Vanderbilt University on Coursera "A Hands-on Introduction to Engineering Simulations" by Cornell University on EdX "Control of Mobile Robots", by Georgia Institute of Technology on Coursera "Machine Learning" by Stanford University on Coursera	

ACTIVITIES & ACHIEVEMENTS

- AAS CanSat Competition: Descent Control Subsystem Design
 - 2017: Team Rank: 41, Score: 90.16% (Preliminary Design Phase)**
Mission simulated a solar powered science glider sampling atmospheric composition during flight
Task: Design of glider required to descend in a circular pattern of no more than 1000 meters
 - 2018: Team Rank: 57, Score 92.17% (Preliminary Design Phase)**
Mission simulated a space probe entering a planetary atmosphere
Task: Design and stabilization of an aerobraking heatshield
 - 2019: Team Rank: 20, Score 95.93% (Critical Design Phase)**
Mission simulated auto-gyro descent of a science payload after release from the launch vehicle
Task: Design of the auto-gyro descent mechanism
 - 2nd place in the Flytron poster competition organized by the Aeronautical Society of India in association with Punjab Engineering College
 - Member of the Autonomous Robotics Club of Purdue
 - Involved in the Rocket League project which aims at using RC cars to play soccer autonomously
 - Worked on implementing deep reinforcement learning methods for the design of a High-Level Planner
 - Selected as Secretary of the Astronomy and Space Physics Society for the academic session 2018-19
 - Responsibilities included organization of events, supervision of projects and management of resources
 - Member of the Purdue Chapter of Sigma Gamma Tau, honor society for Aerospace Engineering
 - Member of the English Editorial Board of Punjab Engineering College
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