

# Kumar Aditya

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## Education

**University of Texas at Austin** – BS in Aerospace Engineering, Computer Science Certificate 2019-2023

## Projects

### Senior Design (Unmanned Fixed-Wing Aircraft)

- Designed and integrated new avionics system running on PixHawk with Ardupilot saving \$500 over previous system
- Designed and integrated a missions system including a Raspberry Pi based video surveillance system that worked in conjunction with avionics to drop a payload with an accuracy of  $\pm 2$  m
- Fixed EMI issue between camera and GPS to bring error below  $\pm 1$  m and allow a successful mission
- Modeled airframe in SolidWorks for conceptual planning and manufacturing through CNC
- Helped in wing structural testing backed by FEA analysis and hand calculations
- Presented winning bid against 2 other teams for RFP and won class competition against other team after downsizing

### Aerial Robotics (ASE 479W)

- Used OpenCV for 3D object positioning from a series of images captured by a quadcopter with an initial accuracy of  $\pm 30$  cm and improved by 90% after implementing RANSAC
- Used ROS & Eigen to calculate and feed a trajectory for a quadcopter to finish obstacle course in 178 s
- Successfully flew in class tournament and achieved 2nd place out of 9 teams

### Quadcopter

- Designed quadcopter system based off information gathered from various forums
- Built and soldered a working quadcopter using off the shelf parts from various vendors
- Programmed and calibrated quadcopter flight controller using Betaflight firmware

### Raven (Texas Convergent Build Team)

- Programmed and maintained backend for a minimum viable product to monitor doctor prescriptions and pharmaceuticals through the use of a mobile app built with ReactJS and Google Firebase

## Experience

**Tutor**, Mehta Prep – Austin, TX 2020 – 2022

- Provided private instruction in MATLAB and calculus to individual or small groups of students to improve academic performance, improve occupational skills, or prepare for academic or occupational tests

**Tech Development Management Intern**, Combined Arms – Houston, TX 2018

- Used Tweepy and Textblob to create a Python script to help reach out to veterans on Twitter
- Evaluated, designed, and setup a new projector system in the presentation room for use by employees
- Learned and used Salesforce to complete database management on all current veterans serviced by the organization to reduce redundancies and errors by 30%

## Skills

**CAD:** SolidWorks, Solidworks CAM, Ultimaker Cura

**Programming:** MATLAB, Simulink, C++, Git, ROS 2, OpenCV, Bash, Python, Java, ReactJS, Swift, Full-stack Web (HTML, CSS, JS, jQuery, AJAX, PHP, SQL), TCP/IP

**Embedded:** Raspberry Pi, Arduino, CubePilot

**Other:** Wind/Water Tunnel Testing, Additive Manufacturing, Composite Materials, LabView, Soldering, Documents Based System Engineering, Trello, Technical Writing, CRM (Salesforce), Hindi, French