Vinamr Arya

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EDUCATION

University of Michigan, Ann Arbor *Graduated: July 2023*
Double Major: B.S.E Computer Science, B.S.E Aerospace Engineering

Coursework: Data Structures and Algorithms | Aerospace Structures | Aerodynamics | Spacecraft Dynamics | Aerospace Engineering Systems | Aerospace Propulsion | Controls of Aerospace Vehicles

WORK EXPERIENCE

Medical Drone UAV *University of Michigan, Ann Arbor*
Lead Engineer *June 2021 - Present*

- Led a cross-functional team to design, prototype, and test a hybrid-electric heavy-lift tilt-rotor quad plane for rapid medical supply deployment. Collaborated with executives from BlueFlite, KNUST team from Ghana, and professors from the University of Michigan.
- Analyzed and resolved field failures by performing rigorous testing to validate major components of the aircraft, including static and dynamic thrust tests to estimate flight performance.
- Utilized solidworks software to maintain and update aircraft models and documentation, ensuring high up-time and economical operation.
- Achieved a 5lbs reduction in weight and a 3 feet reduction in wingspan while increasing the range by 6 km through aerodynamic tuning using Flight Stream and openVSP

M-Fly Autonomous Aircraft *University of Michigan, Ann Arbor*
Structures Lead *June 2022 – May 2023*

- Designed a 45lbs MTOW autonomous aircraft using a combination of carbon fiber, balsa wood, and 3D printed components.
- Developed a novel payload system with a rotating barrel mechanism, effectively managing shifts in center of gravity and minimizing drag, ensuring high up-time and safety for the deployed hardware.
- Collaborated with operations to transition engineering projects into production seamlessly.
- Conducted tolerance analyses and worked through DFM challenges to engineer a two-part payload housing for 16 oz water bottles, incorporating a parachute system triggered by barometric pressure for safe dropping from 100 feet.

PROJECT EXPERIENCE

Igor (All-Terrain Vehicle)

- Designed and prototyped an all-terrain vehicle (ATV) with remote control capabilities from scratch in 9 months.
- Used commercially available motorcycle sprocket and chains to create a caterpillar track drive train.
- Generated low-fidelity prototypes to get user feedback for propulsion controls of the two 125 cc engines.
- Used a suite of sensors, servos, and a Raspberry Pi to add remote driving capabilities with a range of 5 km.

FireFly (Fire Extinguishing Hex copter)

- Designed and prototyped a semi-autonomous hex copter capable of carrying up to 6lbs of fire extinguisher.
- Used a suite of ultrasonic and thermal imaging sensors with DJI FPV system, an Ardupilot and a Raspbery Pi to add semi-autonomous capabilities to the aircraft.
- Investigated the root cause of high-priority mechanical failures, implementing changes to improve reliability and safety.

SKILLS

Computer skills: MATLAB | Python | C++ | Ardupilot | Siemens NX | XFoil | AVL| Catia | VSP | SolidWorks | PX4
Machine skills: Soldering | Laser cutter | 3D Printer | Welding | Lathe | Bandsaw | Carbon Fiber

CAMPUS ORGANIZATIONS

Michigan Cricket Club, Treasurer *July 2022 – July 2023*

- Managed venue selection and booking for indoor cricket tournaments throughout the school year.
- Organized practice games and tournaments involving various universities.

Michigan Aviators, Pilot *December 2018 – July 2023*

- Completed Private Pilot License course from DCT Aviation and received a Private Pilot License.