Igor Khalip

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LinkedIn Profile | Portfolio

Education

University of Michigan, *College of Engineering* **Ann Arbor, MI**
Bachelor of Science in Aerospace Engineering, Minor in Computer Science Dec 2023

- GPA: 3.4/4.0
- Awards/Scholarships/Grants: Michigan Competitive Scholarship and CoE Experiential Learning Grant

Washtenaw Community College **Ann Arbor, MI**
Associates in General Math and Science, C++ Advanced Certificate Winter 2020

- GPA: 3.63/4.0
- Awards/Honors: Dean's High Honor Roll

Relevant Experience

Michigan Aeronautics Space Association (MASA) **University of Michigan**
Test Article Responsible Engineer of Torch Igniter for RP-1/LOX Rocket Engines Sep 2023 - Dec 2023

- Designed GCH4/GOX torch igniter with 90 psi chamber pressure and mass flow of 30.8 g/s which has a 35% higher ignition reliability than MASA's current APCP igniter pucks.
- Performed combustion analysis, thermal hand calculations, and structural hand calculations to size igniter body dimensions to a safety factor of at least 1.5.
- Machined igniter body to specified tolerance from 304 stainless steel.
- Played a key role in assembly and testing of the igniter feed system through cold flow and hotfire operations. This included flaring and bending tubing, GOX cleaning the system, leak checking, and working with an SOP.

Epureanu Research Group **University of Michigan**
Assistant Researcher June 2019 - Ongoing

- Played a key role in development and testing of a high-fidelity simulation environment for off-road vehicles in Unreal Engine 4.
- Improved reliability and functionality of internal scene recreation and data analysis tool through rigorous testing and collaboration with the development teams at Mathworks and Ford.
- Integrated embedded systems with off-road autonomous vehicle

Electric Hopper Vehicle (Humming Bird)
Personal Project - Chief Engineer Feb 2023 - Ongoing

- Designed an electric ducted fan based vehicle which utilizes active thrust vectoring control for stabilization.
- Designed and built avionics system consisting of sensors, actuators, and microcontroller.
- Designed and 3D printed modular airframe for easy mounting and fast design iterability.
- Currently programming and tuning thrust vectoring PID controllers for active flight stabilization.

Contra-Rotating Electric Ducted Fan Propulsion System
Personal Project - Chief Engineer Dec 2022 - Feb 2023

- Designed propulsion system consisting of two contra rotating propellers in a ducted fan configuration which generates 8 newtons of thrust.
- Performed testing to determine optimal parameters for nozzle convergence which increased thrust by 17%.

Skills

- **Programming:** C/C++, Python
- **Software:** Siemens NX, STAR-CCM+, Matlab/Simulink, CATIA, Onshape, Unreal Engine 4
- **Hardware:** Arduino Based Systems, Machining Mill, Machining Lathe, Pressure Systems