

Jayden Ma

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EXPERIENCE

Physical Sciences Inc., Andover, MA

June 2021 - Present

Propulsion and Energetics Engineering Co-op

- Designed, assembled, tested, and hotfired hypergolic propulsion test stand for hydrazine plume analysis
- Built fluid system and visual data acquisition for rotating detonation rocket engine resulting in successful hotfiring
- Streamlined all future rocket motor research by designing shaker table and strand cutter for propellant casting
- Sourced components and designed ingress protection test stand for explosives ordnance disposal aiming device

GE Aviation, Lynn, MA

January - May 2021

Fuel Systems Test Engineering Co-op

- Tested fuel metering unit of NPI turboshaft with automated test controls to validate component for engine testing
- Led and redesigned quality test of production oil coolers assisting in on-time delivery of 17 F414 jet engines
- Learned to setup/maintain fluid systems by reading P&IDs and installing fluids components according to test plan

Boston University Rocket Propulsion Group (BURPG), Boston, MA

March 2019 - Present

Lead Fluid Systems Engineer

- Developed and tested fluid systems on team's first liquid rocket powered by 2500-lbf N2O/IPA engine
- Led design and test planning of engine feed system and co-designed gas generator cycle for the liquid rocket
- Collaborated with other technical leads for systems interfacing and to plan launch operations for summer 2022

EDUCATION

Boston University College of Engineering, Boston, MA

May 2022

Bachelor of Science in Mechanical Engineering (Concentration in Aerospace Engineering)

Cumulative GPA: 3.75/4.00

Coursework: Compressible Flow & Propulsion, Space Vehicle Dynamics, Aircraft Design, Business of Tech Innovation, Fluid Mechanics, Thermodynamics

PROJECTS

"Liquid Rocket Engine Feed System," BURPG Project

January 2021 - Present

- Completed design of pressurization & feed system delivering pressure-fed bipropellants for nominal engine thrust
- Led redesign of P&ID, component selection, pressure budget, & routing CAD after overall vehicle was redesigned
- Advised and finalized decisions for system assembly plan, component testing operations, and launch operations
- Designed and built N2-pressurized water test stand to record pressure drops through coldflow component testing

"Liquid Rocket Gas Generator System," BURPG Project

September 2019 - January 2021

- Co-designed gas generator cycle that increases efficiency of feed system and decreases vehicle mass by 160 lbf
- Modeled chamber and analyzed heat exchanger given thermal & structural loads to prevent component failure

"Thrust Vectoring Aerospike Rocket Nozzle," Senior Capstone Project

September 2021 - Present

- Researched utilizing secondary fluidic injection for thrust vector control in annular aerospike engines
- Led design and build of test stand to feed 200 psig of nitrogen with remote operations & data acquisition
- Co-designed injector, chamber, and nozzle to additively manufacture 30-lbf cold gas aerospike thruster

"F-Class Model Rocket," Personal Project

July - September 2019

- Designed and additively manufactured F-class motor model rocket using OpenRocket & Solidworks
- Learned machining and circuit design to build custom launch pad, launch controller, and recovery system
- Simulated to apogee of 1000 meters and max speed of Mach 1

Other Projects: Gas Rocket Engine Test Stand, Smart COVID Mask Dispenser, Smart Feminine Products Dispenser, C# Kinect Game

SKILLS

Engineering: Fluid & Propulsion Systems, Test Automation, Mechanical Design, P&ID, Machining, Additives, Circuits

Programs: Solidworks, ANSYS, LabVIEW, Python, Excel/VBA, MATLAB, C, HTML, Photoshop, Visio, Arduino

Languages: Fluent in Chinese (Cantonese), conversational in French

LEADERSHIP & HONORS

College of Engineering Dean's List

Spring 2019 - Fall 2020

EK100 First-Year Student Advisor: Boston University College of Engineering

August 2020 - Present

Clarinet Section Leader: Boston University Marching Band

August - December 2020