

Jayden Ma

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EXPERIENCE

Space Exploration Technologies (SpaceX), Hawthorne, CA

Starting June 2022

Incoming Associate Propulsion Engineer

- Will be supporting development of combustion devices for Raptor engine to achieve interplanetary spaceflight capabilities

Physical Sciences Inc., Andover, MA

June 2021 - Present

Propulsion and Energetics Intern

- Co-designed, assembled, tested, and hotfired hypergolic propulsion test stand for UDMH-NTO plume analysis
- Built pressurization system and high-speed camera system for hotfire of rotating detonation rocket engine
- Streamlined future solid rocket research by designing vibration table, strand cutter, and motor insulation for casting

GE Aviation, Lynn, MA

January - May 2021

Fuel Systems Test Co-op

- Tested fuel metering unit of NPI turboshaft with automated test controls to validate component for engine testing
- Led and refined quality test of production oil coolers assisting in on-time delivery of 17 F414 jet engines

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

March 2019 - Present

Lead Fluid Systems Engineer

- Developed and tested fluid systems on team's inaugural liquid rocket powered by 2553-lbf N2O-IPA engine
- Led design, build, and testing 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 winter 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 - Cum Laude

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, and routing CAD after overall vehicle was redesigned
- Designed and built nitrogen-pressurized water test stand for coldflow component testing

"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 high-pressure nitrogen with pressure transducer and load cell data acquisition
- Co-designed injector, chamber, and nozzle to additively manufacture 8.16-lbf cold gas aerospike thruster

"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

"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
- Predicted apogee of 776 meters and max speed of 161 m/s through simulation

Other Projects: Liquid & Gas Rocket Engine Test Stands (BURPG), Piston Engine Plane Design, Smart COVID Mask Dispenser, C# Kinect Game

SKILLS

Engineering: Fluid Systems, Propulsion Systems, Test Automation, Component 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 2021

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

August 2020 - November 2021

Clarinet Section Leader: Boston University Marching Band

August - December 2021