

James Brynn

Long Beach, CA

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EDUCATION

University of Michigan College of Engineering

Ann Arbor, MI

M.S.E. & B.S.E in Mechanical Engineering, Minor in Computer Science

- M.S.E GPA: 4.00/4.00, B.S.E GPA: 3.99/4.00
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WORK EXPERIENCE

Relativity Space | Dynamics Engineer II, 2x Loads & Dynamics Intern

Long Beach, CA

Summer 2022 & 2023 (Internships), July 2024 - Present (Full-time)

- Responsible dynamics engineer for stage separation, landing, and landing leg deployment. Responsibilities include building and running Python simulations, generating loads, setting requirements (for GNC, hardware, and operations), holding design reviews, and evaluating system success via Monte Carlos
- Implemented complex physics like nonlinear actuators and energy attenuators, aerodynamics, propellant slosh, contact dynamics, etc. while improving runtimes, adding tests, and expanding documentation
- Built landing leg model in MotionSolve, ported to Python API for custom pre/post processing workflows
- Owner of water hammer simulations in MATLAB/Simulink, responsible for deriving water hammer loads and informing in-flight and on-pad shutdown con-ops
- Additional responsibilities include coordinating external consultants, conducting interviews for E1/E2 roles in dynamics and partner teams, and managing an intern in the dynamics team

University of Michigan | MECHENG 495 Graduate Student Instructor

Ann Arbor, MI

Fall 2023 - Spring 2024

- Led lab sessions, graded presentations and reports, and instructed students in dynamics, heat transfer, aerodynamics, and nanometrology, as well as experimentation, data processing, and technical writing

Magna International DexSys | Advanced Product Quality Planning Intern

Lansing, MI

Summer 2021

- Supported programs by performing feasibility studies, trialing engineering changes, and reworking parts

Wilson Student Team Project Center | Laboratory Technician

Ann Arbor, MI

Dec 2020 - Sep 2023

- Advise students on machine shop safety, machining and fabrication, and engineering fundamentals
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PROJECTS

Michigan Baja Racing | Drivetrain Team Lead, CVT Subsystem Lead, Driveshaft Subsystem Lead

Ann Arbor, MI

Jan 2021 - Sept 2023

- Placed first overall in 3 national competition seasons out of 80+ teams
- Led new design, analysis, and testing cycle for custom CVT sheaves, shafts, and secondary helix to ensure compatibility with new engine, resulting in zero failures during competitions
- Owned front and rear driveshaft design, manufacturing, and testing, saw zero failures during competitions
- Worked with team to design and analyze novel constant velocity joint and ball spline system for higher articulation and lower mass than currently available Rzeppa or Tripod options (senior capstone project)

SKILLS

- **CAE:** HyperWorks, Femap, Nastran, Altair MotionSolve, MSC Adams, Siemens Teamcenter & NX, SolidWorks
- **Programming:** Python, MATLAB/Simulink, C++, GitHub/Gitlab, AWS & HPC, Linux, Docker