CONNOR STOREY

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EDUCATION

University of Southern California, Viterbi School of Engineering GPA: 3.54
Bachelor of Science: Astronautical Engineering Expected Dec 2025
Master of Science: Mechanical Engineering Expected May 2026

SKILLS

MATLAB | Siemens NX | Microsoft Suite | ANSYS Fluent | Cryogenic Ops | Machining

WORK EXPERIENCE

HStar Space – Los Angeles, CA May-Sep 2024
Propulsion Systems Engineering Intern

- Led trade study of abort subsystem propulsion architectures for crewed heavy-lift launch vehicle
  - Determined threshold subsystem requirements to mitigate risk for human capsule abort
  - Sized and specified propulsion architectures for multiple payload configurations using Excel and MATLAB
  - Presented analysis to lead engineers, delivering architecture recommendations and mass estimates
- Trusted to attend strategy meetings with company leadership, gaining insight into startup operations and decision-making regarding budgeting, scheduling, contract development, and investor communications

INVOLVEMENT

USC Liquid Propulsion Laboratory (LPL) Jan 2025-Present
Fluid Systems Engineer

- Developed and constructed Atlas Dev 2, a mobile cryogenic bipropellant test stand capable of a combined 12 kg/s mass flow at MEOP 1500 psig with team of 15+ undergraduate and graduate engineers
- Assembled lines and valves using NPT, AN, and Swage fittings after bending, flaring, oxygen cleaning, etc.
- Built Excel model to derive purge line valve requirements based on downstream chamber pressure and injector Cv, informing cost-effective valve selection that provided successful full purges after firing engine
- Simulated regenerative channel and chamber pressures of Nova, LPL's 10 kN engine, and assessed max stress and displacement, confirming the nozzle's structural integrity prior to critical design review

Test Engineer

- Served as test conductor for hydrostatic, leak, dual-side cold flow, and hot fire testing campaigns for two engines on two different feed systems; applied P&ID knowledge and test procedures to work safely and increase testing cadence
- Assisted with data analysis during cold flow campaign to determine regulator set pressures and valve actuation timing in ignition sequence, as well as optimize thermal conditioning procedures for LOx-side line
- Modeled injector-milkstool assembly in NX, identifying fitment issues and collaborating with fellow engineers to ensure integration of injector, feed lines, instrumentation fittings, and igniter on test stand

PROJECTS

Senior Design Project - Gallium Field Emission Electric Propulsion (FEEP) Thruster Aug 2024-Present

- Designed and successfully operated a slit-type FEEP thruster, manufactured using 4-axis machining
- Developed diagnostics suite for vacuum chamber testbed, featuring Faraday probe and retarding potential analyzer on stepper motor arm, circuitry, and data acquisition scripts paired with NI DAQ
- Drafted test procedure documents for safe handling of high voltage circuitry, and metal embrittling agents
- Post-processed test data to derive plume divergence losses, thrust, specific impulse, power draw, and thruster's I-V curve from 0 to 10 kV applied potential difference
- Achieved max thrust of 80 ± 40 μN with 8000 ± 4000 sec specific impulse and a 12.55 ± 0.01 W power draw
- Awarded 1st place amongst undergraduate teams at AIAA Section VI conference in March 2025

Rocket Injector Design Jan-May 2024

- Designed a traditionally manufacturable, unlike-impinging doublet injector for J&J, LPL's 2.4 kN kerosene/LOx engine
- Calculated injection angles, orifice sizes, and orifice count to achieve target mixture ratio (O/F = 1.678) and desired spray cone angle for atomization (~0°) while limiting backflow
- Utilized ANSYS Fluent to evaluate flow distribution and pressure gradients within injector
- Iterated design based on CFD outputs, refining manifold geometry and achieving ~20% stiffness in fuel and LOx sides while maintaining feasible spray cone angle. Upon design completion, created drawings with GD&T for manufacturing

Spacecraft Design - Uranus Orbiter Aug 2023-May 2024

- Engaged in semester-long project with 8-person team to design a Class A Uranus orbiter and probe mission, holding design reviews throughout semester leading to end-of-term critical design review
- Owned propulsion subsystem: conducted trade studies and used Excel models to size and select propulsion architecture and components, delivering thermal and power requirements to respective leads
- Drafted and scheduled a comprehensive verification and validation campaign for all spacecraft subsystems, including integration and environmental testing, and addressing nontraditional mission elements