Bryce F. Schaefer

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Areas of Expertise

Technical Operations Expert

- End-to-end project/campaign leader
- Process development and implementation
- Excellent verbal and written communication

Proven Project Manager and Leader

- Cross-functional collaboration
- Requirements and deliverables definition
- Team building, equity and inclusivity

Professional Experience

Principal Launch Engineer — Virgin Orbit, *Sep 2022 – Apr 2023*

- Operated on console as Launch Director or flight crew member for all 6 of Virgin Orbit's orbital rocket launches.
- Manager of all launch configuration files required for carrying out end-to-end launch campaign.
- Led development effort of writing/releasing 200+ products to support 1st international mission.
- Project manager for long-term ground software automation of user interfaces.

Lead Launch Engineer, Flight Crew – Team of 10 — Virgin Orbit, *Jan 2019 – Sep 2022*

- Primary author of vehicle autosequences, GUIs, flight config files and standard operating procedures.
- Co-author of LauncherOne Mission Rules and off-nominal procedure handbook.
- Defined training program for qualifying and certifying console operators and flight crew for launch.
- Developed mission simulation method for training console operators and flight crew using HITL machines.
- Perpetuated company-wide safety culture at go/no-go reviews with program management and external parties.

Lead Propulsion Test Engineer – Team of 10 — Virgin Galactic/Orbit, *Aug 2015 – Jan 2019*

- Operated as Test Director/Conductor on over 50 engine and integrated-stage hot-fire tests.
- Project Manager for design, build, and activation of first and second stage integrated test stands.
- Responsible Engineer for Newton 3.1 Dev 2 first stage engine integration into test stand.
- Served as responsible engineer for pyrophoric TEA-TEB system, developed hazardous handling processes.
- Coordination with supply chain and vendors to ensure on-time hardware delivery to test site.

Propulsion Engineering Intern — SpaceX, *Jan 2015 – June 2015*

- Designed, built, and flow-tested a Venturi-style fuel flow meter for Full-Thrust Merlin vacuum engine.
- Redesigned lightweight thermal insulating foam led to 2.6 lb_m savings on vacuum engine.
- Designed thrust chamber tooling to decrease engine inspection time by 75% and allow for automated inspection.

Research Associate — NASA Propulsion Academy at MSFC, *Summer 2012*

- Characterized performance of a 5 lb_f tri-gas thruster for use with satellite control systems.
- Extensive pressure drop and fluid analysis completed to optimize hardware selection.
- Conducted several successful hot-fire test operations that fulfilled all success criteria.
- Received $1500 1st place award at NASA Academy poster competition.

Education and Academic Projects

MS Aerospace Engineering Sciences, University of Colorado, Boulder, Dec 2014
BS Aerospace Engineering and Mechanics, University of Minnesota, Twin Cities, May 2012

Project Manager – HySoR Hybrid Sounding Rocket Team — CU Boulder, *Spring 2013 – Fall 2013*

- Managed team of 10 engineers to redesign combustion chamber and manufacture rocket structure.
- Organization and execution of two static test fires to verify rocket performance.
- Coordinated team and work distribution to maintain aggressive schedule and meet project deadlines.
- Acquired $15,000 in funding from ULA for future project iterations in preparation for a launch.

Project Manager – Univ of MN Suborbital Rocketry Team — NASA MnSGC, *Fall 2010 – Spring 2011*

- Two-semester project manager of team building science payload for suborbital rocket launch.
- Coordinated project milestones (PDR, CDR), budget, and schedule with all internal/external stakeholders.
- Delivered, integrated, and supported launch operations on Terrier-Orion suborbital rocket.

Publications

1. Latimer, K., Ericson, T., Rubin, Z., Schaefer, B., Panzarino, J., Barnes, S., "Combining Two Worlds of Flight – Rocket meet Airplane, Airplane meet Rocket," *65th Annual SETP Int'l Symposium, Anaheim, CA, October 2021*
2. Panzarino, J., Barnes, S., Schaefer, B., "Virgin Orbit's Airborne Mission Control: A unification of New Space technology with heritage aviation & traditional NASA spaceflight operations," *52nd Annual SFTE Int'l Symposium, St Louis, MO, October 2021.*
3. Dorado, V., Grunder, Z., Schaefer, B., Sung, M., "Tri-gas Thruster Performance Characterization," *49th Joint Propulsion Conference, San Diego, CA, July 2013*, DOI: 10.2514/6.2013-3755.
4. Schaefer, B., Brechtel, C., Crowley, J., Michels, B., Muir, S., Pulido, C., Reid, D., Russel, E., Threet, E., Tozer, S., "Overview of the University of Colorado Boulder Hybrid Sounding Rocket (HySoR)," *50th Joint Propulsion Conference, Cleveland, OH, July 2014,* DOI: 10.2514/6.2014-3869.

Skills and Certifications

- Hazardous systems – pyrophorics handling, crewed air launch rocket operations
- Electronics lab proficient – Raspberry Pi/Arduino, soldering, prototyping, 3D printing
- Software – VS Code, Python & SQL, MATLAB, NI DIAdem, UG NX, Google Workspace/MS Office
- PADI Divemaster – 2023
- AIARE 1 Avalanche Hazard Management Course – 2022

Scholarships and Honors

- Ray E. Tenhoff Award for Outstanding Technical Paper, Society of Experimental Test Pilots, October 2021.
- 1st place paper award, 2012 NASA Academies Intern Paper Presentation, Summer 2012. $1500
- Recipient of Institute of Technology Undergraduate Merit Scholarship, Spring 2010. $2000
- Recipient of Minnesota Space Grant Merit Scholarship, Fall 2011. $2000
- Awarded Undergraduate Research Opportunities Program, Fall 2008. $2000
- Commencement Speaker – International Graduate Summer School, Summer 2014.

Leadership, Outreach, and Interests

- Skype a Scientist K-12 outreach program presenter, 2019-present
- Yuri's Night L.A. LaunchPad Pre-party Lead Coordinator, 2016
- Virgin Orbit Teammates for Women Empowerment member, 2019-2023
- Other: Running (Marathon distance), backpacking, backcountry skiing