Alexander Khosrowshahi

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Education

2023–2027   **Sc.B. in CS/Physics**, *Brown University*, Providence, RI, *GPA – 3.88*.
- **Activities:** Brown Space Engineering (Ground Software Lead), Quantum Computing at Brown, Brown Film Magazine, Brown/RISD Game Developers, Brown Outing Club
- **Relevant Coursework:** CSCI1680: *Computer Networks*, CSCI 0300: *Fundamentals of Computer Systems*, CSCI 0200: *Data Structures and Algorithms*, CSCI 0170: *CS: An Integrated Introduction*, ENGN 1760: *Design of Space Systems* MATH 0520: *Linear Algebra*, MATH0200: *Multivariable Calculus*, APMA1650: *Statistical Inference 1*

2019–2023   **High School Diploma**, *The Urban School of San Francisco*, San Francisco, CA.
- Activities: Space Club (Co-Leader), Math Club (Co-Leader and Founder), Learning Diversity and Neurodivergence Space (Co-Leader)

Experience

June 2024 – Present   **Research Assistant**, Brown University Physics Department, Providence, RI.
Researching particle jet tagging methods in the LHC using machine learning algorithms
- Exploring Higgs self-coupling detection on gluon decay jets using deep learning neural networks
- Recreated top-quark jet tagging models in PyTorch and TensorFlow under Professor Loukas Gouskos.

January 2024 – Present   **Ground Software Lead**, Brown Space Engineering, Providence, RI.
Leading team creating user interface and web app to interact with the PVDX CubeSat
- Managing a team of fullstack developers working primarily in Typescript and React
- Overseeing and planning operations of the Ground Software subgroup and onboarding of new Ground Software members.
- Developing the PVDX CubeSat web app, website, and SATNOGs ground station communication infrastructure with a prospective handoff date in May 2025.

October 2021 – June 2023   **Volunteer Software Developer and Designer**, The Tinkering School Mars Mission (TSMM), San Francisco, CA.
Developed a remote education program for students interested in STEM through a simulated Mars rover mission control environment.
- Programmed rover control systems and backend for remote user control as a volunteer software developer
- Consulted scientists and engineers at NASA and related organizations for accuracy of simulation.
- Presented a Tinkering School Mars Mission exhibit at the San Francisco Exploratorium

Projects

June 2024 – Present   **Co-Lead Developer**, *Beya*.
- Designing and programming payment ecosystem app for small business markets
- Developing application features for user businesses, including rapid employee onboarding, payment processing, labor sharing between businesses, and establishing mutual benefits between local small businesses.

January 2024 – June 2024   **Software Lead**, *Geo-Laser Accelerated Spacecraft Sail (GLASS)*.
- Led software and ground control systems for the GLASS project in ENGN 1760: *Design of Space Systems.*
- Developed astrodynamics simulations of ground-based laser driven spacecraft sail to accelerate heavy payloads past LEO.
- Aided in design and construction of proof-of-concept scale model of sail and deployment mechanism.

Skills

- Programming Languages: C/C++ (proficient), Python (proficient: PyTorch, Numpy, Astropy, Poliastro), Assembly (proficient), html/css, Rust, typescript/javascript, Racket, FreeRTOS, Matlab
- Soft: Group Coordination, Teaching (2 years experience), Tool Training (miter saw, tablesaw, bandsaw, drill press)
- Tools: Adobe Illustrator, Photoshop, Excel

Interests

- Computational Physics, Embedded Systems, Cryptography, Cosmology, Esolangs, Control Systems, Astrodynamics, Particle Physics, Guitar, Painting, Watchmaking, Creative Coding, Fountain Pens