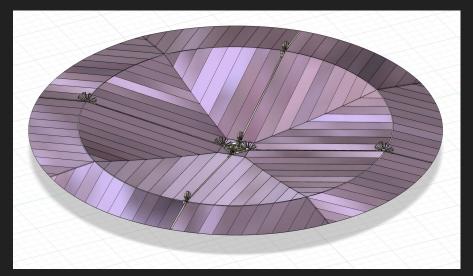
### Alexander Khosrowshahi

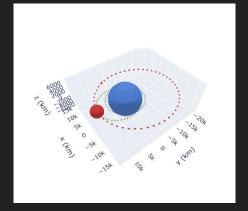
Sample of Work

#### Geo-Laser Accelerated Spacecraft Sail (GLASS) Project

- As software lead on the GLASS project, I implemented a novel astrodynamics simulation for ground-based laser impulses to a low-Earth orbit photon sail payload in Poliastro, later ported to Orekit
- I aided in the design and construction of our physical prototype photon sail, including programming the control system for deployment
- Presented our work along with my team at the 2024 Space Horizons conference



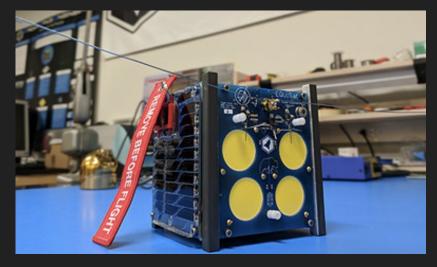




# Brown Space Engineering (Ground Software Lead)

- As leader of Ground software for Brown Space Engineering, I lead a team of 10+ software engineers working on satellite communications, web and web app development, and maintaining the digital face of BSE.
- Our team is currently developing a ground station for communication with the Perovskite Visual Degradation eXperiment satellite (PVDX), along with a web app that allows students to interact with and read information about the satellite's state and capabilities.

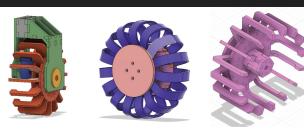




# The Tinkering School Mars Mission (TSMM)

- Between 2021 and 2023 I worked as a developer on the Tinkering School Mars Mission, an educational project that sought to bring accessible space and science education to underprivileged communities through a simulated Mars mission control environment
- I programmed control systems for our rovers (known as burlies) and backend for remote user control over the burlies.
- We presented our work at the San Francisco
   Exploratorium in 2023, with work continuing
   into the present in the form of
   Boxbots—low-cost educational cardboard
   robots made and sold by the Tinkering School.





#### The Design Process iterating, iterating

The Tinkering School Mars Mission team used an iterative design process when creating their wheels. To iteratively design means to make many prototypes and test them, considering the best aspects of each design with each successive prototype.

The team started using 3D-printed wheels, which worked great with the disadvantage of high production costs Soon they moved on to laser-cut plywood pieces, a material they still use for current rover designs.

The robot design team tested several wheel concepts, from deep treads that worked great for climbing rocky debris to toroflux wheels that molded to the surface they were on for a smooth riding experience. Eventually, they settled on a "waffle tread" wheel, which balanced smooth overland travel with debris-navigating traction for an optimized drive for the generation 1.5 burk.