

Timothy James Ewing

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EDUCATION **University of Colorado Boulder** **2016 - 2021**
Bachelor of Science - Engineering Physics

TECHNICAL SKILLS

Skill	Active Use	Years of Experience	Experience Level
Python	2014 - Present	8	Specialist
git	2012 - Present	10	High
Unix Shell (BASH)	2012 - Present	10	High
C++	2014 - 2017	4	Moderate
Java	2012 - 2018	7	Moderate
Go	2021 - Present	1	Moderate
MATLAB	2017 - 2021	4	Moderate
Javascript, HTML	2016 - 2021	5	Moderate
Solidworks, Fusion 360	2015 - 2020	5	Moderate

EXPERIENCE

Software Developer, Toro Robotics, Longmont, Colorado **2021- Present**

- Developed complex path planning algorithms for autonomous landscaping robots in Python.
- Designed a novel projection from 3D surfaces to 2D for planning paths on variable-height terrain.

Flight Controller, Southwest Research Institute, Boulder, Colorado **2017 - 2021**

- Worked as Flight Controller for CYGNSS, a constellation of eight weather satellites.
- Maintained and developed Python/Django based mission planning tools for CYGNSS and LUCY.
- Doubled CYGNSS satellite contact cadence and improved data delivery time through automated data validation and replay.
- Developed a web interface for an in-house orbital trajectory analysis tool (Lambert solver).

Software Team Member, FIRST Robotics Team 1619 **2012 - 2016**

RELEVANT COURSEWORK

Independent Study, New Horizons

- Designed an optical filter conversion algorithm for unresolved Pluto and Charon observations.
- Implemented least-squares Fourier series fit to analyze Pluto/Charon phase curve.
- Built a modular, testable pipeline in Python.

Independent Study, MAXWELL Cubesat

- Developed calibration methods for a 6-axis gyro/accelerometer.
- Defended conclusions at a Technical Interchange Meeting with NASA personnel.

Additional Relevant Coursework

- **Physics:** Classical Mechanics I-II, Electricity and Magnetism I-II, Quantum Mechanics I-II, Thermodynamics and Statistical Mechanics I
- **Mathematics:** Statistics I, Calculus I-III, Linear Algebra I, Differential Equations I, Differential Geometry