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PHILIP J. LINDEN

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Professional Summary

I am an engineer who is passionate about the design and analysis of aviation and space systems, including but not limited to satellites, human spaceflight, spacecraft and aircraft structures, propulsion, mechanisms, remote sensing, imaging, and controls. I am relentlessly curious, a strong visionary, and optomistic about the future of technology and humankind.

Degrees

Rochester Institute of Technology *Rochester, NY* May 2017
Bachelor of Science in Mechanical Engineering – Aerospace Option
Master of Engineering in Mechanical Engineering (Dual Degree)
Graduate Paper: Cosmic Dawn Intensity Mapper (CDIM)
Undergraduate Capstone: 1 kW Arcjet Thruster

Skills

Systems Engineering, Mechanical Engineering, Aerospace Engineering, Electro-Optical Engineering, Image Processing, MATLAB, Python, OpenCV, Git, LaTeX, Solidworks, NX8.5, MS Project, MS Visio, MS Office Superuser, Linux, Controls

Engineering Experience

Lockheed Martin Space *Sunnyvale, CA* June 2017 – Present
Electro-Optical Engineer, Optical Payload Center of Excellence
- Characterize focal plane arrays and imaging systems in optical labs.
- Systems engineering and Electro-Optical engineering on IRAD projects to support major business pursuits.
- Led a software team through critical development milestones for Matlab engineering tools.
- **Projects:** Machine Learning Hackathon, Optical Payload Training Course Project

SpaceX *Hawthorne, CA* June – August 2016
Vehicle Engineering Intern, Capsule Structures
- Modeled and drafted designs for critical structures for the Crew Dragon vehicle.
- **Projects:** Crew Dragon Weldment Doubler

Vehicle Engineering Intern, Capsule Reusability January – July 2015
- Project development, including hands-on prototyping and designing, conducting and presenting experiments to explore changes to Dragon Cargo space capsules.
- Approached several projects simultaneously which demanded intensive problem-solving, interpersonal, and time management skills.
- **Projects:** Dragon Capsule Water Sealing, Dragon Capsule Parachute Packing Tool Rework

RIT Center for Detectors *Rochester, NY* March – May 2016
Lab Assistant, Mechanical Engineer
- Created system-level designs and modeled mechanical components for astronomy research experiments including a cryogenic sounding rocket payload, a ground-based observatory telescope, and small spacecraft.
- Led a team of undergraduate students and served as systems engineer for integration of a NASA sounding rocket research payload.
- **Projects:** Cryogenic Star Tracking Attitude Regulation System (CSTARS)

GE Aviation *Cincinnati, OH* January – May 2014
Engineering Co-op, Ultrasonic Non-Destructive Test Lab
- Operated ultrasonic transducers and 3-axis scanners.
- Analyzed scan imagery for component defects in test samples and flight hardware, including composite delaminations and weld voids.
- Developed and optimized test procedures for components with irregular geometry.
- **Projects:** GEnx Flowpath Spacer Inspection Optimization

RIT Space Exploration (RITSPEX) *Rochester, NY* Fall 2014 – Present
Alumni Member
- Advise undergraduate students working on space exploration projects.
- Principal Investigator and Project Lead for computer vision and remote sensing payloads.
- **Projects:** SPEX Project Definition Document Template & Guide, *Where U At Plants?* (WUAP) HAB Payload, SPEXcast Podcast

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Detailed Project Descriptions

Cosmic Dawn Intensity Mapper (CDIM) *github.com/runphilrun/CDIM-design* **Graduate Paper**
Contributed to a proposal for a Probe Class (~$850M) NASA mission for a 1.5 meter space telescope intended to observe near-infrared light from the early universe. Compiled financial, mass, and power budgets for the optics, instruments, cryocooler & spacecraft. Defined system-level design, generated representative CAD models and figures for the entire spacecraft.

1 kW Arcjet Thruster *github.com/RIT-Space-Exploration/msd-P17101* **Undergraduate Capstone**
Developed the concept, system-level design, and nozzle design for a small scale arcjet thruster demonstration. Worked in a multidisciplinary team of mechanical and electrical engineers. Responsible for communication between the team and the customer (RIT Space Exploration). Designed and performed CFD analysis on the thruster nozzle.

Where U At Plants? (WUAP) High Altitude Balloon Payload *github.com/RIT-Space-Exploration/hab-cv*
nothing is here

Cryogenic Star Tracking Attitude Regulation System (CSTARS) *RIT Center for Detectors*
Designed the mechanical model of CSTARS, an experiment endorsed by the New York Space Grant and funded with $100,000 by NASA's Undergraduate Student Instrument Program. I designed CAD models for the cryogenic thermal regulation system, telescope, and mechanical supports in Solidworks 2015. I was the systems engineer for payload integration with a Black Brant IX at NASA Wallops Flight Facility.

SPEX Project Definition Document Guide *github.com/RIT-Space-Exploration/SPEX-Project-Definition-Documents*
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Machine Learning Hackathon *Lockheed Martin Space*
Led a team to win a company-wide machine learning hackathon competition. Implemented Expectation Maximization algorithm using K-means in Python3 with sci-kit learn. Presented the project approach and results to a panel of LM Engineering & Technology upper management.

Optical Payload Training Course Project *Lockheed Martin Space*
Led a multidisciplinary team in a course project to design an optical payload mission concept and instrument. Worked in a multidisciplinary team with subject matter experts in Sunnyvale, CA and Denver, CO. Coordinated team meetings, managed progress and action items. Developed an atmospheric science mission concept and designed the instrument.

Dragon Capsule Water Sealing *SpaceX*
Designed and tested retrofits to the Dragon Cargo capsule in order to prevent water ingress on splashdown. Investigated water entry paths, conducted experiments to validate designs, and implemented modifications on flight hardware present on Dragon vehicles since the CRS-7 mission.

Dragon Capsule Parachute Packing Tool Rework *SpaceX*
Designed and implemented modifications to the Dragon Cargo parachute packing tool, including working with third party vendors to deliver flight critical components.

Crew Dragon Weldment Doubler Design *SpaceX*
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GEnx Flowpath Spacer Inspection Optimization *GE Aviation*
nothing is here

SPEXcast Podcast *blog.spexcast.com*
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