Curriculum Vitae

Contact Info.	**Name:** David Abraham James **Cell:** (661) 857-7102 **Email:** davidabraham@ucla.edu **LinkedIn:** linkedin.com/in/da-james/ **Github:** github.com/da-james **Portfolio:** da-james.github.io	**Education**	**University of California: Los Angeles 2025** M.S./Ph.D. Geophysics and Space Physics **University of California: Los Angeles 2019** B.S. Mathematics of Computation with a Minor in Geophysics and Planetary Physics

Awards	**NASA Space Grant Undergraduate Fellowship**
	Lab Assistant June 2019 - August 2019
	Description: Support facility and logistical needs for Psyche Mission, Europa Mission, and IMAP mission.
	  • Followed ESD protocols when in space lab
	  • Kit parts for missions

Skills	*Applied Maths:* Mathematical Modeling, Numerical Methods, Optimization, Algorithms *Other:* Tutoring, Project Management, Staff Management, Public Speaking, Lab experience, Documentation Writing	**Technical Skills**	*Tools:* Emacs, VIM, Jupyter, terminal, Docker *Advanced Knowledge:* Python, Fortran, Julia, LaTeX *Working Knowledge:* C/C++, Microsoft Office *Basic Knowledge:* Assembly, Bash *Cloud-Based Technologies:* AWS, GCP *Other:* Soldering, Milling, Machining, Circuitry, ESD Safety

Work Experience	**Jet Propulsion Laboratory (JPL)** June 2020 - September 2020
	Title: Student Intern
	  • assisted with debugging Julia simulation
	  • created new documentation to streamline software use
	  • added modules and functions to further the simulation
	
	Simulated Planetary Interiors (SPIN) Lab March 2019 - June 2020
	Title: Research Assistant
	  • assisted with debugging software
	  • created new documentation to streamline software use
	  • assisted with translating coding classes from Matlab code to Python
	
	Institute of Transportation June 2018 - June 2020
	Title: IT Assistant
	  • assisted in building computers for the ITS department along with setting up connections and machines for the Lewis Center
	  • Help maintain the web servers under the ITS department and fix any bugs that may arise
	
	Atmospheric and Oceanic Department October 2019 - January 2020
	Title: Student II Coding Assistant
	  • assisting Professor Jasper Kok with translating his course from Matlab to Python
	    – re-coding homework assignments
	    – designing scripts for lecture
	    – providing any outside resources on coding in Python
	
	College of the Canyons September 2014 - June 2019
	Title: MESA Tutor/ Workshop Facilitator/ Math and Science Tutor
	  • Assisted students in STEM homework and answered questions they had
	  • Lead Academic Excellence Workshops in the MESA Center
	  • Physics Academic Workshop showed a GPA increase of 0.2 with my students and an average of 1 letter grade increase over other students
	
	ClassCalc June 2018 - September 2018
	Title: Software Intern
	  • created an algorithm that optimized the accuracy of the calculator from an error of .01 to .00001
	  • cleaned up code and provided documentation on software that had none
	
	High Pressure Technologies LLC May 2011 - July 2011
	Title: Machine Shop Intern
	  • Assisted machinist with pressure system repair
	  • Surveyed systems at other businesses
	  • machined fittings for pressure systems
	  • Learned machining and workshop environment

Project Experience	**Rapid: Blue Dawn CubeSat Mission** – **http://bruinspace.com/projects/rapid.html**

Rapid: Blue Dawn CubeSat Mission – **http://bruinspace.com/projects/rapid.html**

Title: Assembly, Integration, & Testing Engineer   June 2018 - April 2019

Project: Team developed a payload that consisted of a magneto-hydrodynamic pump that launched on Blue Origin's New Shepard rocket

Skills Used: Python, Arduino, Documentation Writing, Circuitry, Soldering

- Write assembly, safe-to-mate, and functional procedures
- Test procedures for errors and accuracy on design
- Test magneto-hydrodynamic pump extensively to ensure design was safe to fly

DataFest 2019 – **https://github.com/da-james/dataFest2019**

Title: Data Analyst   May 2019

Project: Team developed a physical model to calculate when a rugby player experienced a tackle during a given game, and compared if it had an affect on players reporting scores

Skills Used: Python, Data Analysis, Documentation Writing, Math Modeling

- designed physics model to have thresholds for impulse and speed
- pulled outside resources from papers describing stats of players
- checked accuracy of model
- created presentation for judges to see results

Idea Hacks 2019 – **https://github.com/da-james/muscleBot**

Title: Data Analyst   January 2019

Project: Team designed a RC Car that moved based off of hand motion and muscle detection

Skills Used: Python, Arduino, Circuitry, Data Analysis

- Calibrated muscle sensor to recognize EM pulses to turn on/off RC Car
- Calibrated hand motion, so that acceleration data would move the car in correct motion
- Assisted in circuit design of RC Car and hookup of hardware to devices

DataFest 2018 – **https://github.com/da-james/datafest2018**

Title: Data Analyst   May 2018

Project: Team developed a machine learning algorithm to determine possible indicators of competitive job postings on indeed.com

Skills Used: Python, Data Analysis, Documentation Writing

- Extracted data, so that team can work with smaller sets
- Analyzed data via matrices to confirm machine algorithm was accurate
- Created presentation to present results to audience and judges

LA Hacks 2018 – **https://github.com/ryanmjacobs/4sk8**

Title: Full Stack Developer   March 2018

Project: Team developed an Arduino compass hooked up to a skateboard that would receive heading from external website

Skills Used: JavaScript, Arduino, Circuitry

- Designed back end of the website using JavaScript, so that Arduino received GPS coordinates
- Designed simple front-end for the website using HTML, so that user could input destination
- Assisted team members with design, so that it would gather data, and output an accurate heading

DataFest 2017

Title: Data Analyst   May 2017

Project: Team developed a machine learning algorithm to determine purchase pattern of families traveling

Skills Used: Python, Data Analysis, Machine Learning

- Extracted data, so that team can work with smaller sets
- Analyzed data via matrices to confirm machine algorithm was accurate
- Created presentation to present results to audience and judges

NASA High Altitude Student Platform: Electrostatic Cosmic Dust Collector [ECDC]

Title: Systems Engineer   Fall 2016 - Fall 2017

Project: Team optimized the device for HASP to collect particles from celestial showers.

Skills Used: Project Management, Staff Management, Public Speaking

- Researched corona discharge to optimize the electrostatic dust collection

NASA High Altitude Student Platform: Electrostatic Cosmic Dust Collector [ECDC]

Title: Systems Engineer   Fall 2015 - Fall 2016

Project: Team developed a device for HASP to collect particles from celestial showers.

Skills Used: C/C++, Public Speaking, Project Management, Soldering, Machining, Milling

- Modelled systems and possible scenarios the ECDC will go through during flight, so that the team would know design requirements

College of the Canyons Science Fair: Sonoluminescence

Title: Researcher and Analyst   Fall 2013 - Spring 2014

Project: Team constructed an apparatus to display the sonoluminescence phenomena.

Skills Used: Soldering, Circuitry, Oscilloscope, Lab Testing

- Researched sonoluminescence
- Constructed the apparatus by soldering a circuit together

Research Experience	**Rapid: Blue Dawn Post Launch Analysis**

Rapid: Blue Dawn Post Launch Analysis

Advisor: Lydia Adair, Emily Hawkins   April 2019 - December 2019

Project: Analyze the magnetohydrodynamic design of Blue Dawn, and show that it is a sensible design

Skills Used: Python, Debugging, Documentation Writing, Soldering, Circuitry, Arduino, Lab testing

- Setup Arduino circuit to run pump and read values from flow meter
- Use Python interface to display values on screen to users to observe
- Repeat experiment efficiently to ensure results are consistent

Mineral Lab: APEx

Advisor: Abby Kavner   October 2019 - December 2019

Project: Extracts peak locations and ancillary information from an unrolled diffraction image.

Skills Used: Python, Debugging, Documentation Writing

- Switching Python 2.0 standard to Python 3.0 standard
- Allowing for more cases of images to be inputted and analyzed

DIYnamics: DIYrotate – https://github.com/DIYnamics/DIYrotate

Advisor: Jon Aurnou   July 2019 - Present

Project: Digitally rotates a movie and allows for single-particle tracking. Originally designed to intuitively show Coriolis force effects by the appearance of inertial circles when digitally rotating film of a ball oscillating on a parabolic surface.

Skills Used: Python, Debugging, Documentation Writing

- Switching Python 2.0 standard to Python 3.0 standard
- Debugging OpenCV package implemented in design

EPSS 199: Directed Research

Advisor: Lars Stixrude   June 2019 - August 2019

Project: Created a model that simulated a silicate planet's mass and radius with a initial parameters and equations

Skills Used: Python, Fortran, Debugging, Documentation Writing

- Coded model in Fortran following modular design
- Used Python to visualize simulated points
- Collected observed data from NASA Exoplanet Database to compare

URBN PL 199: Directed Research – https://github.com/ucla-its/network-commute-distance

Advisor: Evelyn Blumenberg   June 2019 - August 2019

Project: Compare the euclidean distance to the network distance of ordered pairs of 14 million home and work FIPS code destinations

Skills Used: Python, Debugging, docker, jupyter, Documentation Writing

- Used a docker container to run OSRM software to create a local map of California on the machine
- Paralleled Python code such that it can run the OD pairs efficiently
- Used public Census data to gather latitudes and longitudes for FIPS codes
- Showed that the Euclidean distance differs on a median of about 3 miles