

Curriculum Vitae

Contact Info.	Name: David Abraham James	Education	University of California: Los Angeles 2025
	Cell: (323) 628 - 1146		M.S./Ph.D. Geophysics and Space Physics
	Email: davidabraham@ucla.edu		University of California: Los Angeles 2019
	LinkedIn: linkedin.com/in/da-james/		B.S. Mathematics of Computation with a
	Github: github.com/da-james		Minor in Geophysics and Planetary Physics
	Portfolio: da-james.github.io		
Awards	NASA Space Grant Undergraduate Fellowship		
	<i>Lab Assistant</i>	June 2019 - August 2019	
	<i>Description:</i> Support facility and logistical needs for Psyche Mission, Europa Mission, and IMAP mission. <ul style="list-style-type: none">Followed ESD protocols when in space labKit parts for missions		
Skills	<i>Applied Maths:</i> Mathematical Modeling, Numerical Methods, Optimization, Algorithms	Technical Skills	<i>Tools:</i> Emacs, VIM, Jupyter, terminal, Docker
	<i>Other:</i> Tutoring, Project Management, Staff Management, Public Speaking, Lab experience, Documentation Writing		<i>Advanced Knowledge:</i> Python, Fortran, Julia, \LaTeX <i>Working Knowledge:</i> C/C++, Microsoft Office <i>Basic Knowledge:</i> Assembly, Bash <i>Cloud-Based Technologies:</i> AWS, GCP <i>Other:</i> Soldering, Milling, Machining, Circuitry, ESD Safety
Work Experience	Math Success Program UCLA CPO		September 2021 - Present
	<i>Title:</i> Math Counselor <ul style="list-style-type: none">assist students in STEM homework and answer questions they have		
	Jet Propulsion Laboratory (JPL)		June 2020 - September 2020
	<i>Title:</i> Student Intern <ul style="list-style-type: none">assisted with debugging Julia simulationcreated new documentation to streamline software useadded modules and functions to further the simulation		
	Simulated Planetary Interiors (SPIN) Lab		March 2019 - June 2020
	<i>Title:</i> Research Assistant <ul style="list-style-type: none">assisted with debugging softwarecreated new documentation to streamline software useassisted with translating coding classes from Matlab code to Python		
	Institute of Transportation		June 2018 - June 2020
	<i>Title:</i> IT Assistant <ul style="list-style-type: none">assisted in building computers for the ITS department along with setting up connections and machines for the Lewis CenterHelped maintain the web servers under the ITS department and fix any bugs that may arise		
	Atmospheric and Oceanic Department		October 2019 - January 2020
	<i>Title:</i> Student II Coding Assistant <ul style="list-style-type: none">assisting Professor Jasper Kok with translating his course from Matlab to Python<ul style="list-style-type: none">re-coded homework assignmentsdesigned scripts for lectureprovided any outside resources on coding in Python		
	College of the Canyons		September 2014 - June 2019
	<i>Title:</i> MESA Tutor/ Workshop Facilitator/ Math and Science Tutor <ul style="list-style-type: none">Assisted students in STEM homework and answered questions they hadLead Academic Excellence Workshops in the MESA CenterPhysics 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
	<i>Title:</i> Software Intern <ul style="list-style-type: none">created an algorithm that optimized the accuracy of the calculator from an error of .01 to .00001cleaned up code and provided documentation on software that had none		
	High Pressure Technologies LLC		May 2011 - July 2011
	<i>Title:</i> Machine Shop Intern <ul style="list-style-type: none">Assisted machinist with pressure system repairSurveyed systems at other businessesmachined fittings for pressure systemsLearned machining and workshop environment		

**Teaching
Experience**

EPS SCI 8 - Earthquakes

Title: Teaching Assistant

March 2022 - June 2022

Class Description: Laboratory, one hour; one field day. Causes and effects of earthquakes. Plate motion, frictional faulting, earthquake instability, wave propagation, earthquake damage, and other social effects. Hazard reduction through earthquake forecasting and earthquake-resistant design.

EPS SCI 13 - Natural Disasters

Title: Teaching Assistant

January 2021 - March 2021

Class Description: Discussion, one hour; one field day. Global urbanization together with historical demographic population shift to coastal areas, especially around Pacific Ocean's Ring of Fire, are placing increasingly large parts of this planet's human population at risk due to earthquakes, volcanos, and tsunamis. Global climate change combines with variety of geologic processes to create enhanced risks from catastrophic mass movements (e.g., landslides), hurricanes, floods, and fires. Exploration of physical processes behind natural disasters and discussion of how these natural events affect quality of human life.

EPS SCI 8 - Earthquakes

Title: Teaching Assistant

September 2020 - December 2020

EPS SCI 171 - Advanced Computing in Geoscience

Title: Lab Assistant

January 2020 - March 2020

Class Description: Use of high level computing language to program microcontrollers to acquire laboratory-style experimental data. Misfit modeling and quantitative comparisons of acquired data sets and theory. Forward modeling from fundamental equations. Examples, experiments, and exercises from disciplines within geosciences.

EPS SCI 71 - Introduction to Computing in Geoscience

Title: Learning Assistant

September 2019 - December 2019

Class Description: Introduction to writing programs, visualization of geoscience data, and comparison with models.

Project
Experience

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

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

EPS SCI 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