

Curriculum Vitae

Contact Info.	Name: David Abraham James	Education	University of California: Los Angeles 2025
	Cell: (661) 666-2009		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
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.		
	<ul style="list-style-type: none">Followed ESD protocols when in space labKit parts for missions		
Skills	Applied Maths: Mathematical Modeling, Numerical Methods, Optimization, Algorithms	Technical Skills	Tools: Emacs, VIM, Jupyter, terminal
	Other: Tutoring, Project Management, Staff Management, Public Speaking, Lab experience, Documentation Writing		Advanced Knowledge: Python, Fortran, L ^A T _E X
			Working Knowledge: C/C++, Julia, Microsoft Office
			Basic Knowledge: Java, Assembly, Bash
			Cloud-Based Technologies: AWS, Docker
			Other: Soldering, Milling, Machining, Circuitry, ESD Safety
Work Experience	Jet Propulsion Laboratory (JPL)		June 2020 - September 2020
	Title: 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
	Title: 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
	Title: 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 CenterHelp 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		
	<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-coding homework assignmentsdesigning scripts for lectureproviding any outside resources on coding in Python		
	College of the Canyons		September 2014 - June 2019
	Title: 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	
Title: 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	
Title: 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			

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 - Present

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 - Present

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

SPIN Lab: DigiPyRo – github.com/dynamics/digipyro

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 – 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

**Leadership
Experience**

Triangle Fraternity

House Manager

June 2019 - June 2020

- Coordinated tenants and assigned them living spaces
- Maintained house through repairs
- Called technicians to fix invasive damages
- Tracked a budget of \$24,000 to use for the house

Learning Assistant Program: EPSS 71 - Intro to Computing for Geoscience

Learning Assistant

Sept 2019 - Dec 2019

- assisted students with their problems by redirecting the questions and checked for understanding
- urged students to work collaboratively to check code
- created worksheets, so students had more practice with code
- showed students skills in debugging problems themselves when instructors weren't around to help
- brought up concerns students had to TA and instructor

UCLA CalGeo

Community Service Chair

Fall 2017 - Spring 2018

- Planned community service events
- Planned public outreach events

Astronomy and Physics Club

President

Fall 2015 - Spring 2016

- Started and manged club events
- Wrote budget proposals

Volunteer Experience	Northridge Hospital ER <i>ER Volunteer</i> <div>Fall 2014 - Summer 2016</div> <ul style="list-style-type: none"> • Stocked medical carts with necessary items for nurses • assisted patients in simple requests of food or calling • assisted nurses in patient care as directed
Community Outreach	UCLA: Exploring Your Universe <i>Booth Volunteer</i> <div>Fall 2017 - Fall 2018</div> <i>Description:</i> An annual event hosted by UCLA that had science booths illustrating all types of phenomena <ul style="list-style-type: none"> • assisted in setting up booths and running information • ran science demo for particular group I was associated with that year College of the Canyons: Star Party <i>Booth Volunteer</i> <div>Fall 2013 - June 2017</div> <i>Description:</i> COC hosted a semester event that had science booths and telescopes set up for families to come and walk around. There would also be a couple guest speakers to present on particular science topics <ul style="list-style-type: none"> • assisted in setting up tables and telescopes for workers • ran science demos and explained phenomena to families • assisted families around the event
Professional Org.	Triangle Fraternity for Engineers, Architects, and Scientists Hermanos Unidos Mathematics, Engineering, Science, Achievement (MESA)
Interests	Youtuber, salsa dancing, weight-training, Super Smash Bros.(Joker main)