

# Curriculum Vitae

<b>Contact Info.</b>	<b>Name:</b> David Abraham James <b>Cell:</b> (661) 666-2009 <b>Email:</b> davidabraham@ucla.edu <b>LinkedIn:</b> linkedin.com/in/daj-2805/ <b>Github:</b> github.com/DJ-2805	<b>Education</b>	<b>University of California: Los Angeles 2019</b> <i>Degree:</i> B.S. Mathematics of Computation <i>Minor:</i> Geophysics and Planetary Physics <b>College of the Canyons 2016</b> <i>Degrees:</i> Associates in Mathematics Associates in Physics
<b>Awards</b>	<b>NASA Space Grant Undergraduate Fellowship</b> <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"> <li>Followed ESD protocols when in space lab</li> <li>Kit parts for missions</li> </ul>		
<b>Skills</b>  <b>Technical Skills</b>	<i>Applied Maths:</i> Mathematical Modeling, Numerical Methods, Optimization, Algorithms <i>Other:</i> Tutoring, Project Management, Staff Management, Public Speaking, Lab experience, Documentation Writing <i>Tools:</i> Emacs, VIM, Jupyter, terminal <i>Advanced Knowledge:</i> Python, Fortran, $\text{\LaTeX}$ <i>Working Knowledge:</i> C/C++, Julia, Microsoft Office <i>Basic Knowledge:</i> Java, Assembly, Bash <i>Cloud-Based Technologies:</i> AWS, Docker <i>Other:</i> Soldering, Milling, Machining, Circuitry, ESD Safety	<b>Professional Orgs.</b>	Triangle Fraternity for Engineers, Architects, and Scientists Hermanos Unidos Mathematics, Engineering, Science, Achievement (MESA)
<b>Work Experience</b>	<b>Simulated Planetary Interiors (SPIN) Lab</b> March 2019 - Present <i>Title:</i> Research Assistant <ul style="list-style-type: none"> <li>assists with debugging software</li> <li>creates new documentation to streamline software use</li> <li>assisting with translating coding classes from Matlab code to Python</li> </ul> <b>Institute of Transportation</b> June 2018 - Present <i>Title:</i> IT Assistant <ul style="list-style-type: none"> <li>assisted in building computers for the ITS department along with setting up connections and machines for the Lewis Center</li> <li>Help maintain the web servers under the ITS department and fix any bugs that may arise</li> </ul> <b>Atmospheric and Oceanic Department</b> October 2019 - January 2020 <i>Title:</i> Student II Coding Assistant <ul style="list-style-type: none"> <li>assisting Professor Jasper Kok with translating his course from Matlab to Python               <ul style="list-style-type: none"> <li>re-coding homework assignments</li> <li>designing scripts for lecture</li> <li>providing any outside resources on coding in Python</li> </ul> </li> </ul> <b>College of the Canyons</b> September 2014 - June 2019 <i>Title:</i> MESA Tutor/ Workshop Facilitator/ Math and Science Tutor <ul style="list-style-type: none"> <li>Assisted students in STEM homework and answered questions they had</li> <li>Lead Academic Excellence Workshops in the MESA Center</li> <li>Physics Academic Workshop showed a GPA increase of 0.2 with my students and an average of 1 letter grade increase over other students</li> </ul> <b>ClassCalc</b> June 2018 - September 2018 <i>Title:</i> Software Intern <ul style="list-style-type: none"> <li>created an algorithm that optimized the accuracy of the calculator from an error of .01 to .00001</li> <li>cleaned up code and provided documentation on software that had none</li> </ul> <b>Gentle Ride Ambulance</b> May 2014 - December 2014 <i>Title:</i> EMT-B <ul style="list-style-type: none"> <li>Patient care such as vitals, assessments, medical interventions</li> <li>Giving and taking medical history reports</li> </ul> <b>Papa John's Pizza</b> May 2013 - April 2014 <i>Title:</i> Assistant Manager <ul style="list-style-type: none"> <li>Took orders and ran register in the store</li> <li>Surveyed systems at other businesses</li> <li>Closing the restaurant and stock counting</li> </ul> <b>High Pressure Technologies LLC</b> May 2011 - July 2011 <i>Title:</i> Machine Shop Intern <ul style="list-style-type: none"> <li>Assisted machinist with pressure system repair</li> <li>Surveyed systems at other businesses</li> <li>machined fittings for pressure systems</li> <li>Learned machining and workshop environment</li> </ul>		

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**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/DJ-2805/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/DJ-2805/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/DJ-2805/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
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**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***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***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

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**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
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<b>Volunteer Experience</b>	<b>Northridge Hospital ER</b>	
	<i>ER Volunteer</i>	Fall 2014 - Summer 2016
	<ul style="list-style-type: none"> <li>• Stocked medical carts with necessary items for nurses</li> <li>• assisted patients in simple requests of food or calling</li> <li>• assisted nurses in patient care as directed</li> </ul>	
<b>Community Outreach</b>	<b>UCLA: Exploring Your Universe</b>	
	<i>Booth Volunteer</i>	Fall 2017 - Fall 2018
	<i>Description:</i> An annual event hosted by UCLA that had science booths illustrating all types of phenomena <ul style="list-style-type: none"> <li>• assisted in setting up booths and running information</li> <li>• ran science demo for particular group I was associated with that year</li> </ul>	
	<b>College of the Canyons: Star Party</b>	
	<i>Booth Volunteer</i>	Fall 2013 - June 2017
	<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"> <li>• assisted in setting up tables and telescopes for workers</li> <li>• ran science demos and explained phenomena to families</li> <li>• assisted families around the event</li> </ul>	