

Daniel Lopez

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EDUCATION

University of Washington, Seattle - Undergraduate

September 2016 - March 2021

Bachelor's Degree in Science. Earth and Space Sciences Physics option. I applied technical skills to many academic and volunteer opportunities, such as lab and tutoring work.

ENGINEERING EXPERIENCE

Research Associate, Earth and Space Sciences Δ*IsoLab, University of Washington

Dr Katherine Huntington

September 2020 - June 2021

- I investigated environmental factors by testing the composition of isotope samples from Mt Rainier and Lake Vostok water.
- Compiled and computationally processed data using Matlab. I performed statistical analysis to assess the isotopic composition of each sample.
- Maintained and repaired lab instruments and troubleshooted the functionality of any mechanical and electronic components as problems arose.
- I redesigned and documented lab safety procedures and operation instructions on the main lab website.
- Familiar with working with hazardous materials and cleaning lab dishware from samples, including biohazardous materials.
- I prepared lab materials such as making test tubes for samples and sealing samples within glass tubes.

Lab Associate, Sensors, Energy, and Automation Laboratory (SEAL), University of Washington

Dr Alex Mamishev

January 2024 - Present

- Member of the Embedded Group.
- I am a contributing member of the SEAL technical writing team.
- Experience with Excel, Google spreadsheets, and Word.

Lab Associate, UW AFSL, University of Washington

Dr Christopher Lum

October 2018 - December 2018

- I implemented Autopilot systems on RC planes under the supervision of Dr. Lum.
- Knowledge of RC plane Servos.

Circuit Builder and Designer, Personal Projects, Seattle, Washington

Myself

November 2018 - Present

- I have experience building circuits found on the internet.
- I built a box filled with light pulsing LEDs using a 555 timer op amp, a 2N222 transistor, and capacitors. I later mass-produced the circuit for other personal purposes. I found the circuit design on the internet.
- I designed and built a circuit for a Doppler shift demonstration device for Astro 101 to help students understand the Doppler shift effect from edge-on galaxies versus face-on galaxies.
- Experience soldering LED rope lights into custom designs for a local business venture.
- Designed and built the circuits for a CricketSat and Gerdien Condenser for ESS 205 at the University of Washington.

RESEARCH EXPERIENCE

Research Associate, Department of Astronomy, University of Washington

Dr Sophia Cisneros

March 2023 - Present

- Researcher for Rotation Curve Fitting Model (RCFM) under Dr. Sophia Cisneros.
- Analyzed the rotation curves of the Milky Way and nearby galaxies and investigated the implications for constraining modern dark matter models (such as Modified Newtonian Dynamics).
- Used photometric measurements to determine galaxy physical properties and characterized the luminosity-radius correlation of the sample.

PUBLICATIONS

- Cisneros, N. S., Ott, R., Crowley, M., Roberts, A., Paz, M., Brown, Z., Joyal, L., Rico, R. R., Gutierrez-Gutierrez, E., Pham, P., Holland, Z., Livingston, A., Castrellon, L., Graham, S., Rubin, J. S., Ashelya, A., Battaglia, D., Lopez, D., Salwa, M., 2023, *Rotation Curve Fitting Model*, astro-ph.GA, (arXiv:2310.04372)

TEACHING EXPERIENCE

Tutor & Lead Tutor, University of Washington and Seattle Central Community College

June 2017 - Present

- I tutored in math, physics, and electrical engineering at the Engineering Academic Center UW (EAC).
- Lead tutor of the EAC. As assistant to the director, I would help supervise and communicate with the other tutors.
- I tutored math at Seattle Central Community College (MESA).
- I am tutoring precalc, the calculus series, astronomy, and Intro to Electrical Engineering at the UW instructional center.

Teaching Associate and Outreach Volunteer, Department of Astronomy, University of Washington

January 2022 - December 2023

- I was a TA and Grader for the Astronomy department at UW Seattle.
- Designed lesson plans and homework for Astro 150.
- Involved in outreach, guiding students to resources and research.
- Hosted planetarium shows at UW Seattle for MESA school field trips.
- Active UW MESA volunteer for field trips and school supply runs.

SKILLS

I'm an experienced public speaker in higher education roles. Works well with doing maintenance on machines/lab instruments. Moderate-level experience in Excel, Word, PowerPoint, Matlab, and Python. Fluent Spanish speaker. Experience with soldering for commercial purposes. I have a valid Washington driver's license.

REFERENCES

Andrew Schauer (IsoLab Manager) - Lab Supervisor

aschauer@uw.edu

Prof. Sophia Natalia Cisneros (UW Astronomy) - Postbac Research Supervisor

sofcis94@uw.edu

Prof. Oliver Fraser (UW Astronomy) - Astronomy Professor

ojf@uw.edu

Dr. Sheldon Levias (Engineering Academic Center Director) - Tutor Supervisor

srl1@uw.edu

Urpi Ruiz-Angeles (UW MESA program coordinator) - Volunteer Supervisor

urpi@uw.edu