Allen Christopher Marquez

E-mail: amaquez@calstatela.edu LinkedIn: www.linkedin.com/in/csula-allen/
Website: acmarquez.github.io Github: www.github.com/acmarquez

RESEARCH INTERESTS

Machine Learning(GANs & NLP), Differential Privacy, Blockchain, High Performance Computing

EDUCATION

B. S. Computer Science, California State University, Los Angeles Fall 2019-Spring 2022
Current GPA: 3.83
East Los Angeles College(ELAC), Monterey Park, CA Fall 2016-Spring 2019
Transferred to California State University, Los Angeles (CSULA)

RESEARCH EXPERIENCE

Undergraduate Research Intern, Carnegie Mellon University June 2021-October 2021
Advisor: *Dr. Zhiwei Steven Wu*
There exists a need for a standardized and comprehensive platform for testing and deploying differentially private algorithms. I worked to create and implement a modular bench-marking platform for differntially private algorithms using python through github. I integrated existing state of the art differntially private algorithms and added new datasets to test algorithms. This work was presented to the sponsors of the REU (National Security Agency / National Counterintelligence and Security Center) and at a poster presentation held by the Institute for Software Research.

CREST-CEaS Fellow, California State University, Los Angeles(CSULA) December 2019-Present
Advisor: *Dr. Radi Jishi*
I am modeling the optical properties of hyperbolic metamaterials using linux-based software WIEN2k. I am taking the data from these calculations and plotting the . An abstract for this work was accepted for the Emerging Researchers National Conference 2022. and I will present a scientific poster at this conference. I also managed a budget to purchase two high-end workstations to help boost the computational bottleneck we face when modeling our crystal structures; I manage the installation of new software and work to optimize all the libraries required for our software.

Undergraduate Research Intern, Carnegie Observatories June 2020-May 2021
Advisor: *Dr. Alexander Ji*
I implemented a new method in python to aid astronomers in automatically analyzing stellar properties from telescope data. The method, called "The Payne", is a neural network that emulates a physical model of stellar spectra. I also strengthened my scientific communication through bi-weekly oral presentations to other research interns, a final presentation to the research scientist at Carnegie, and a scientific poster presented at the American Astronomical Society conference.

Undergraduate Research, Carnegie Observatories & ELAC June 2018-December 2018
Advisor: *Dr. Alexander Ji*
I measured the elemental composition of five stars by using high resolution stellar spectra. Our goal was to determine where these stars that were classified as "hypervelocity stars" came from. Using optical spectroscopy we determined their chemical abundances and stellar parameters. I presented a scientific poster at the 2018 Mathematics, Engineering and Science Achievement (MESA) at ELAC. I also created a collaboration between my advisor Dr. Alexander Ji from Carnegie

Observatories and Director of MESA Dr. Djuradj Babic to extend research by providing two undergraduate students at ELAC the opportunity, funding, and mentorship.

TEACHING EXPERIENCE

Supplemental Instructor Leader, East Los Angeles College (ELAC) February 2019-June 2021
I was the lead teaching assistant at ELAC's physics department. I managed communication between departments to help choose TA's for the department. I TA'd for calculus-based physics courses: classical mechanics, thermodynamics, and electricity and magnetism. Led recitation sections that teach problem solving skills and collaboration amongst students. Attended weekly meetings with faculty to prepare material for recitation.

ABSTRACTS

2. Marquez, A., Jishi, R. (2021). Optical Properties of Hyperbolic Metamaterials Using Density Functional Theory. *(Submitted and Accepted to Emerging Researchers National Conference 2022)*

1. Marquez, A., Ji, A., Ting, Y., & Hansen, T. (2021). Inferring Stellar Labels from Optical High-Resolution Spectra with The Payne. Bulletin of the AAS, 53.(1)

CONFERENCES & PRESENTATIONS

Emerging Researchers National Conference 2022, Washington, D.C. February 2022
Institute for Software Research Symposium, Carnegie Mellon University August 2021
American Astronomical Society 237, Virtual January 2021
Carnegie Observatories Summer Student Research Symposium, Virtual August 2020
27th Annual Research Symposium, CSULA January 2020
MESA Symposium, ELAC September 2019

MENTORSHIP

CASSI Alumni Mentor, Carnegie Observatories June 2021-August 2021
MESA Peer Mentorship Program, ELAC August 2020-June 2021
Supplemental Instructor Mentor, ELAC Fall 2019-June 2020

CLUBS

Association of Computing Machinery, Cal State LA Chapter August 2019-June 2020
Mathematics Engineering Science Achievement, ELAC August 2018-June 2019
Physics and Astronomy Club, ELAC August 2018-December 2018

AWARDS

Edison STEM Scholarship, CSULA August 2020-Present
Deans Honor List, CSULA December 2019-Present
Best Oral Presentation 2nd place, CSULA August December 2019