

KARY ANGELLY CABRERA

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EDUCATION

UNIVERSITY OF SOUTHERN CALIFORNIA (USC), Los Angeles, CA Expected Graduation: May 2024

B.S. | Electrical and Computer Engineering

Specialization in Artificial Intelligence Applications

- Presidential Scholar, Viterbi Fellow, Ming Hsieh Institute Undergraduate Research Scholar

ACADEMIC EXPERIENCE

UNIVERSITY OF SOUTHERN CALIFORNIA, Department of Electrical Engineering August 2023 – Present

Undergraduate Researcher, Directed Research

Advisor(s): Shrikanth Narayanan Ph.D.

- Performing independent research on monitoring Central American crop growth and disease detection, creating training datasets, and training object detection models. Interviewing agricultural laborers to refine non-invasive strategies to observe the influence of climate change on growing conditions.

UNIVERSITY OF SOUTHERN CALIFORNIA, Department of Electrical Engineering January 2022 – Present

Undergraduate Research Assistant, Single Analysis and Interpretation Laboratory

Advisor(s): Shrikanth Narayanan Ph.D.

- Created pre-processing scripts to transform raw biometric data into training datasets for supervised learning, enabling early detection of emotional distress in adolescents and inter-family conflict. Applied feature engineering to improve model performance, yielding a 25% improvement in accuracy.

UNIVERSITY OF SOUTHERN CALIFORNIA, Department of Biological Sciences June 2018 – August 2018

High School Research Intern, Single Molecule Biophotonics Group

Advisor(s): Fabien Pinaud Ph.D.

- Applied nuclear extraction and imaging techniques to observe the relationship between Emerin and Actin protein levels in Emery-Dreifuss Muscular Dystrophy development, revealing no notable protein weight alteration post-RNAi introduction and minimal impact on Actin expression.

PROFESSIONAL EXPERIENCE

MICROSOFT & CYBORG MOBILE

May 2023 – August 2023

Software Engineering Intern, Foundation Reliability (M365 Substrate)

- Led the development of an automated data extraction, analysis, and storage pipeline, utilizing large language models, prompt engineering, natural language processing, and cloud analytics to identify trends across 300 post-mortem incidents, summarizing months of reports in under 10 minutes.

BREAK THROUGH TECH @ UNIVERSITY OF CALIFORNIA, LOS ANGELES

June 2022 – April 2023

Break Through Tech AI Fellow, Verizon

- Created datasets and trained an object detection model to sort phones by brand and color, achieving 96% confidence and 98% precision. Collaborated on a color sorting algorithm using Euclidean distance, capable of predicting over 800 colors for improved inventory tracking and product recommendations.

MICROSOFT & CYBORG MOBILE

June 2022 – August 2022

New Technologist Intern

- Engaged in a seven-week academy to learn the product management lifecycle. Applied these skills to develop a real-time climate data and emergency resources web application, helping communities

facing extreme weather events. Collaborated in a small team to pitch, and present a minimum viable product to Microsoft executives.

PUBLICATIONS

- **“Implementing personalized machine learning models for sensing psychological states from mobile devices,”** *In preparation for NIH.* Carta, K. E., Duong J. B., Walters, S. N., Benamu, D. I., Jumonville, G. A., Freitag, G. F., Tutul, A. A., Avramidis, K., **Cabrera, A.**, Narayanan, S., Chaspari, T., Comer, J. S., Ahle, M. W., & Timmons A.C.

PRESENTATIONS

- **MICROSOFT E+D INTERN DEMO SYMPOSIUM**, Microsoft Headquarters, Redmond, WA, July 2023. **Cabrera, A.**, Saldana G., Hassan N., Umoren E., “Incident Post-Mortem Analysis - Auto Resolution,” Selected as one of the top 50 teams from a competitive organization-wide selection to present at the Microsoft E+D Intern Symposium.
- **BREAK THROUGH TECH LOS ANGELES**, University of California, Los Angeles (UCLA), Los Angeles, CA, December 2022. **Cabrera, A.**, Reyes S., “Team Verizon: Identifying Objects and Sorting by Color,” Presentation awarded finalist title for the National Center for Women in Technology's Collegiate award.
- **CENTER OF COMPUTATIONAL MEDIA INTELLIGENCE EXPLORECSR**, University of Southern California, Los Angeles, CA, May 2021. **Cabrera, A.**, Ojukwu, C., Lim, S., Deng, J., “Understanding the Role of Machine Learning for Music in Media.”
- **LENNOX MATHEMATICS SCIENCE ENGINEERING ACADEMY**, Lennox Mathematics Science Engineering Academy, Lennox, CA, June 2020. **Cabrera, A.**, Cancinos, J., Salgado, N., Perez, D., “Self-Sustaining Light Post System Utilizing an Electromechanical Generator.”
- **BRIDGE UNDERGRADUATE SCIENCE INSTITUTE SYMPOSIUM**, University of Southern California, Los Angeles, CA, August 2018. **Cabrera, A.**, Rodriguez, W., “The Impact of Emerin and Actin Protein Synthesis Disruption on Muscular Dystrophy Caused by RNA Interference.”

PROJECTS

- FLICK PICK - A COLLABORATIVE FILTERING-BASED CHROME EXTENSION** July 2023
 - Collaborated with a team to develop a Chrome extension that utilizes collaborative filtering to create personalized film recommendations on popular streaming sites.
- ELECTRIC GUITAR WITH NOTCH-FILTER FOR SIGNAL ATTENUATION** November 2022 - December 2022
 - Designed and constructed an electric guitar featuring a custom notch filter, enabling precise signal amplification and targeted frequency rejection.
- RASPBERRY PI-BASED K-MEANS FOR MUSIC GENRE CLASSIFICATION** November 2021
 - Developed a Raspberry Pi-based k-means classification model utilizing volume sensor data to classify music genres and generate song recommendations, achieving a perfect score for project difficulty.

LEADERSHIP AND HONORS

- **Graduate School Mentorship Initiative, Cientifico Latino (2023):** Selected as one of 100 high-achieving students to participate in Cientifico Latino's Graduate School Mentorship Initiative (GSMI).
- **Ming Hsieh Institute Undergraduate Research Scholar, USC (2023):** Selected as one of 5 undergraduate researchers to receive exclusive funding, leadership, and mentorship opportunities.
- **Collegiate Award Finalist, NCWIT Aspirations in Computing (2023):** Selected as one of 47 undergraduate and graduate women to receive recognition for developing high-impact projects.

- **Computer Science Research Mentorship Program (CSRMP), Google (2023):** Selected as one of 135 students to participate in Google's semester-long research pathways and mentorship program.

SKILLS AND INTERESTS

- **Technical Skills:** Programming (C/C++, Python, Verilog, MATLAB), Front-end Development (HTML, JavaScript), Data Analysis (Kusto, Cosmos, Jupyter), Machine Learning (Computer Vision, NLP, LLM)
- **Professional Skills:** Project Management, Technical Writing, Collaboration
- **Interests:** Computer Vision, Computational Sustainability, Human-computer Interaction, Natural Language Processing