

Alvin Villarosa

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EDUCATION

Claremont McKenna College - Claremont, CA

Expected May 2025

Bachelor of Arts, Science Management, Neuroscience Concentration

- GPA: 3.8/4.0
- Relevant Courses – Neuropharmacology and Behavior, Systems & Cell/Molecular Neuroscience, Genetics, Computer Science and Data Science in R, Neuroeconomics, and Corporate Finance

Smyrna High School - Smyrna, TN

May 2021

- GPA: 4.0/4.0

HONORS AND AWARDS

- May 2024 Undergraduate Research Award (2x), 7C Psi Chi Research Symposium
- Mar. 2024 Barry M. Goldwater Scholarship
- Mar. 2024 UCSF Summer Research Fellowship Award, Claremont McKenna College
- Oct. 2023 ABRCMS Travel Award, Annual Biomedical Research Conference for Minoritized Scientists
- Feb. 2023 SUIP IDEAL Scholar, Perelman School of Medicine at the University of Pennsylvania
- Feb. 2022 Sponsored Internship Award, Claremont McKenna College

RESEARCH EXPERIENCE

Summer Researcher, UCSF Harwell Lab - San Francisco, CA

May 2024 - Present

Principal Investigator: Corey Harwell, Ph.D

- Study the neurodevelopment of dopamine circuits in the lateral septum of the brain through a mouse model
- Perform immunohistochemistry, transformations, and prepared CRISPR material to knock out and overexpress certain genes of interest involved in dopamine development
- Analyze data through ImageJ and QuPath to determine dopamine abundance

Undergraduate Research Assistant, Cultural Influences on Mental Health Lab - Claremont, CA

Aug 2022- Present

Principal Investigator: Wei-Chin Hwang, Ph. D

- Work under Professor Wei-Chin Hwang to formulate a survey that measures attitudes, prevalence, and other psychosocial and demographic factors related to psychedelic usage among college students
- Collect responses from 500+ college students in the Claremont College Consortium via Qualtrics and perform t-tests, ANOVA, and regression analyses in SPSS to determine patterns of psychedelic use among participants
- Develop a literature review on the extant knowledge about psychedelic usage among college students

Summer Research Assistant, Decision Neuroscience Lab - Claremont, CA

May 2022 - Present

Principal Investigator: Alison Harris, Ph. D

- Recruited 40+ participants and conducted experiments using electroencephalography (EEG) to analyze neural oscillations in correlation to body language perception ability
- Analyzed cognitive data from 98 participants, performing MATLAB statistical analyses and examining psychological measures for cognitive function and Autism Spectrum Disorder, such as Shipley-2 and Autism Quotient (AQ) surveys
- Devised new statistical analysis programs using FOOF programming via Python and MATLAB to measure variabilities between cognitive data and aforementioned psychological measures

SUIP IDEAL Research Assistant, Children's Hospital of Philadelphia - Philadelphia, PA

Jun 2023 - Oct 2024

Principal Investigator: Andrew C. Edmondson, M.D., Ph.D

- Investigated seizures present in GALNT2-CDG, a congenital neurodevelopmental disorder in clinical patients through a mouse model by performing molecular assays, immunocytochemistry, immunohistochemistry, and Western blotting on cortical tissue
- Analyzed brain electrical activity in transient mouse models through electroencephalography (EEG), using machine learning and EEG analysis in MATLAB
- Remotely improving MATLAB code for better precision analysis of EEG data and collecting new data based on improved algorithms

Research Assistant, Reed Cognitive Neuroscience Lab - Claremont, CA**Jan 2023 - May 2024**

Principal Investigator: Catherine L. Reed, Ph.D

- Investigate the relationship between specific working memory (WM) cognitive load and aging through WM tasks protocols and Electroencephalography (EEG) on age groups 18-65
- Perform Independent Component Analysis (ICA) to extract and separate brain signal recordings produced by EEG and to produce significant spatial maps to show neural correlates of working memory brain signaling

Keck Science Research Assistant, W.M. Keck Science Department - Claremont, CA**Jan 2022 - Jan 2023**

Principal Investigator: Findley Finseth, Ph. D

- Collaborated with Professor Findley Finseth and other research assistants to experiment and publish work on the genetic variation and ecological evolution of *mimulus* flowers
- Performed DNA extractions, PCR, qPCR, and gel electrophoresis to obtain and examine specific gene sequences
- Used ImageJ, R Programming, and Biostatistics to collect and analyze data significance

NON-RESEARCH EXPERIENCE**JumpStart Corps Member, Americorps Eastern Seals - Upland, CA****Jan 2023 - Present**

- Assist teachers and teaching assistants in providing educational and social support to pre-school and kindergarten students from low-income and underrepresented backgrounds in a classroom setting
- Facilitate planning and implementation of new activities and learning

Diversity, Equity, and Inclusion Intern, W.M. Keck Science Department - Claremont, CA**Aug 2022 - May 2024**

- Host and organize semesterly open research houses, where 25+ professors at Keck and KGI discuss their research and possible research positions to facilitate student-faculty interactions and expand research opportunities
- Discuss with the faculty DEI committee to formulate the department's DEI policies and mission statement
- Evaluate and assess documentation in the hiring processes to find potential new professors for the department

CARE Fellow, CARE Center - Claremont, CA**Apr 2022 - May 2024**

- Provide resources and set up multicultural and open-dialogue events to help promote inclusion and expression within the college community and reduce barriers to student success and well-being
- Lead the community engagement committee, organizing collaborations and working together with other resource centers and services across the Claremont College consortium
- Promote the access and development of the Queer Resource Center and Asian American Resource Center at Pomona College

LEADERSHIP EXPERIENCE**Recruitment Coordinator and Volunteer, Emanate Health - West Covina, CA****Aug 2023 - Present**

- Work on Orthosurgery and on Postoperative floors to assist RNs and CNAs in quality patient care
- Perform vital signs, change beddings, assist in ambule walking, and execute discharge and feeding for patients
- Converse with patients to assess individual needs via filling out "WeCare" forms that let healthcare personnel understand more about their patients
- Lead recruitment process for prospective health scholars, conducting interviews and checking vaccination records

Co-President & Chair for Mental Health, Claremont Students of Public Health - Claremont, CA**Aug 2021 - Present**

- Organize mental health support circles for certain affinity groups
- Set up and cooperate with professors and clinical psychologists to host mental health workshops
- Administering plans to create a student-led mental health service program

Vice President, Claremont Colleges Kasama - Claremont, CA**Aug 2021 - Present**

- Strategize and collaborate in an executive committee of seven members to build the Filipinx community at the Claremont College consortium
- Host, organize, and teach lessons at the Tagalog language table at Oldenborg Dining Hall at Pomona College to foster cultural language immersion and education and cultural dances for performances
- Initiate volunteer and resource drives to help the local Filipinx communities in Southern California, particularly supporting and helping out with Historic Filipinotown events and excursions

OTHER EXPERIENCE

<i>Community Engagement and Dance Member, 5C Party With A Purpose - Claremont, CA</i>	Jan 2024 - Present
<i>Volunteer, Uncommon Good - Claremont, CA</i>	Jan 2024 - Present
<i>Ambassador and Mentor, Goldwater Foundation</i>	May 2024 - Present
<i>Mentor, Women and Minority Voices in STEM - Claremont, CA</i>	Sept 2024 - Present
<i>Mentor, CAUSE Philippines</i>	Jan 2023 - Present
<i>Peer Mentor, Asian-Pacific American Mentors Program - Claremont, CA</i>	Aug 2022 - May 2024
<i>Dance Crew Member, Groove Nation - Claremont, CA</i>	Jan 2023 - May 2024
<i>Claremont Center Volunteer, AbilityFirst - Claremont, CA</i>	Jan 2023 - Oct 2023
<i>Educational Outreach Committee, Health Bridges - Claremont, CA</i>	Jan 2022 - May 2022
<i>Fawcett Hall Dormitory President, Claremont McKenna Residential Life - Claremont, CA</i>	Aug 2021 - May 2022

PUBLICATIONS

Edmondson, A. C., Yu, M., **Villarosa, A.**, Shiplett, E. J., Schjoldager, K. T., & Zhou, Z. (2024). Neuronal loss of Galnt2 impairs O-glycosylation and leads to neurobehavioral deficits mimicking GALNT2-CDG. *bioRxiv*.
<https://doi.org/10.1101/2024.09.30.615951> (IN REVIEW)

PRESENTATIONS

Conference Poster Presentations

Villarosa, A., Kong, Y., Cen, J., Hwang, W. (2024, April). Factors Associated with Substance Use Among Liberal Arts College Students. Presented at the Western Psychological Association (WPA) Convention, San Francisco, CA.

Kong, Y., **Villarosa A.**, Cen J., Fujimoto, K., Hwang, W. (2024, April). The Psychedelic Attitude Scale: A Structural Model Predicting Attitudes and Actual Usage Among College Students. Presented at the Western Psychological Association (WPA) Convention, San Francisco, CA.

Cen J., Kong, Y., **Villarosa A.**, Hwang, W. (2024, April). Prevalence and Characteristics of Psychedelic Usage Among Liberal Arts College Students. Presented at the Western Psychological Association (WPA) Convention, San Francisco, CA.

Villarosa, A., Shiplett, E., Thurston, T., Yu, M., Schjoldager, K., Edmondson, A. C. (2023, November). Characterizing Epileptic Seizures in Galnt2 Neuronal Knockout Mice through Electroencephalography Analysis and Glycoproteomics. Presented at the Annual Biomedical Research Conference for Minoritized Scientists (ABRCMS), Phoenix, AZ.

Villarosa, A., Shiplett, E., Thurston, T., Yu, M., Schjoldager, K., Edmondson, A. C. (2023, July). Characterizing Epileptic Seizures in Galnt2 Neuronal Knockout Mice through Electroencephalography Analysis and Glycoproteomics. Presented at the 30th Meeting of the Leadership Alliance National Symposium (LANS), Hartford, CT.

Villarosa, A., Shiplett, E., Thurston, T., Yu, M., Schjoldager, K., Edmondson, A. C. (2023, August). Characterizing Epileptic Seizures in Galnt2 Neuronal Knockout Mice through Electroencephalography Analysis and Glycoproteomics. Presented at the University of Pennsylvania Summer Undergraduate Internship Program (SUIP) Symposium, Philadelphia, PA.

Denaro, C., Blue, G., Chatterjee, V., Cruz, J., Dileep, A., Kakani, V., Lee, S., Rane, A., **Villarosa, A.**, Couperus, J., Bukach, C. & Reed, C. (2024, April). Self-regulation and the MMN. Presented at the 7C's Psych Research Symposium, Claremont Graduate University, Claremont, CA.

Denaro, C., Gotico, J. J., Kakani, V., Kamakura, C., Kou, N., Patil, A., Pua, A. M., Uehara, M., Thomas, W., **Villarosa, A.** & Harris, A. (2024, April). Implementing a Motion Capture Protocol For a Study of Body Movement Recognition. Presented at the 7C's Psych Research Symposium, Claremont Graduate University, Claremont, CA.

Shipley, H., Denaro, C., Joshi, J., Dileep, A., Cruz, J., Kakani, V., Rane, A., Oyedeji-Olaniyan, O., Carranza, O., Tran, P., Chatterjee, V., **Villarosa, A.**, Hartley, A., Harris, A., & Reed, C. (2023, April). Influence of Age & Cognitive Load on Alpha-Band Oscillations. Presented at the 7C's Psi Chi Research Symposium, Claremont Graduate University, Claremont, CA.

Harris, A., McElvain, P., **Villarosa, A.**, Denaro, C., Reed, C. L. (2023, March). Individual Variability in Sensorimotor Mu Suppression to Observation of Human Actions. Presented at the 30th Anniversary Meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Conference Oral Presentations

Villarosa, A., Shiplett, E., Thurston, T., Yu, M., Schjoldager, K., Edmondson, A. C. (2023, September). Characterizing Epileptic Seizures in Galnt2 Neuronal Knockout Mice through Electroencephalography Analysis and Glycoproteomics. Presented at the Keck Science Department Summer Research Symposium, Claremont, CA.

Presented at the Western Psychological Association (WPA) Convention, Riverside, CA.

- **Villarosa, A.**, Kong, Y., Cen, J., Wang, R., Lin, H., McElvain, P., Hwang, W. (2023, April). Prevalence and Impact of Substance Use Among Liberal Arts College Students.
- Lin, H., Cen, J., **Villarosa, A.**, Kong, Y., Wang, R., McElvain, P., Hwang, W. (2023, April). Mystical Experiences and Bad Trips? Reports of College Students on their Psychedelic Experiences.
- Kong, Y., Cen, J., Lin, H., **Villarosa, A.**, McElvain, P., Wang, R., Hwang, W. (2023, April). The Reemergence of Psychedelic Science and the Need for Research on College Students.
- Cen, J., Kong, Y., Lin, H., **Villarosa, A.**, Wang, R., McElvain, P., Hwang, W. (2023, April). Prevalence and Correlates of Psychedelic Usage Among Liberal Arts College Students.
- Wang, R., Kong, Y., Cen, J., McElvain, P., **Villarosa, A.**, Lin, H., Fujimoto, K., Hwang, P. (2023, April). Improving our Understanding of the Characteristics of Psychedelic Use: A Multivariate Approach.
- McElvain, P., Kong, Y., Cen, J., Wang, R., Lin, H., **Villarosa, A.**, Fujimoto, K., Hwang, P. (2023, April). Characteristics of College Students Who Have Positive Attitudes Toward Psychedelic Usage.
- Kong, Y., McElvain, P., Cen, J., Wang, R., Lin, H., **Villarosa, A.**, Hwang, P. (2023, April). The Formative Process of Developing a Psychedelic Orientation Program.

Villarosa, A., McElvain P., Harris, A. (2022, July). Neural Correlates of Body Movement Perception. Presented at Claremont McKenna College Summer Research Program (SRP) Conference, Claremont, CA.

SKILLS AND INTEREST

- **Neuroscience/Biology Techniques:** EEG/EEG Lab MATLAB (User Experience), Independent Component Analysis, Electrophysiology, PCR, qPCR, Microscopy, DNA/RNA Isolation, Immunocytochemistry, Immunohistochemistry, cDNA synthesis, Western Blotting, Mouse Brain Surgery/Dissection, Embryonic Mouse Dissection, Cell Culture/Harvest, Molecular Spectrophotometry, Cryosectioning, Mice Perfusion, Molecular Cloning, Gel Purification/Extraction, Transformation, CRISPR, Single-Cell Patch Clamp Recording
- **Technical/Programming:** Microsoft Office, Instagram, MATLAB, Python, Image J, Qualtrics, IBM SPSS, R (Introductory), Sirenia Seizure Software, QuPath Analysis
- **Foreign Languages:** Tagalog (Native), English (Proficient)

REFERENCES

Alison Harris, Ph.D
Associate Professor of Psychology
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Wei-Chin Hwang, Ph.D
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Andrew C. Edmondson, M.D., Ph.D
Assistant Professor of Pediatrics & Attending Physician (Human Genetics and Metabolism)
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