

Shawn T. Schwartz

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EDUCATION

M.S. in Biology

Expected June 2021

University of California, Los Angeles

Provisional Advisor: Dr. Michael E. Alfaro

Research Interests: Developing machine learning applications and deep learning models to uncover complex patterns within biological data sets at a high-throughput scale.

B.S. in Cognitive Science (Highest Honors) and Biology (Honors)

June 2019

University of California, Los Angeles

Major: Cognitive Science (Highest Departmental Honors), *Specialization in Computing*

Honors Thesis: "Choosing risks and rewards: Memory for positive and negative item–location associations"

Advisor: Dr. Alan D. Castel

Major: Biology (Departmental Honors), *Specialization in Computing*

Honors Thesis: "The role of big data and machine learning: Methods for assessing macroevolutionary dynamics of color pattern diversity in coral reef fishes"

Advisor: Dr. Michael E. Alfaro

ACADEMIC EMPLOYMENT

UCLA Department of Ecology and Evolutionary Biology

Los Angeles, CA

Graduate Teaching Assistant

September 2019 – Present

- Sole teaching assistant for two undergraduate upper division courses and one graduate course.
- Create original instructional content, lectures, and weekly assignments for students.
- Manage student grades, answer emails, and hold weekly office hours for student support.

UCLA New Student & Transition Programs

Los Angeles, CA

New Student Advisor

April 2019 – September 2019

- Provided general life sciences curriculum advising in large group settings.
- Worked in large team settings to plan and execute events for an incoming class of over 9,500 students.
- Directly provided academic advising and peer counseling services to 150 newly admitted UCLA students.

PUBLICATIONS

Alfaro, M. E., Karan, E. A., **Schwartz, S. T.**, & Shultz, A. J. (2019). The evolution of color pattern in Butterflyfishes (Chaetodontidae). *Integrative and Comparative Biology* 59(3), 604 – 615. <https://doi.org/10.1093/icb/jcz119>

Dang, J., Lin, B., Yuan, J., **Schwartz, S. T.**, Shah, R. M., & Garg, N. K. (2018). Smart access to 3D structures. *Nature Reviews Chemistry* 2, 95 – 96. <https://doi.org/10.1038/s41570-018-0021-y>

MANUSCRIPTS UNDER REVIEW

Schwartz, S. T., Siegel, A. L. M., & Castel, A. D. (under review). Strategic encoding and enhanced memory for positive value-location associations. Manuscript under review.

CONFERENCE PRESENTATIONS AND INVITED TALKS

Siegel, A. L. M., **Schwartz, S. T.**, & Castel, A. D. (2020, April). *Age-related differences in local and global metacognitive accuracy in a visuospatial selectivity task*. Poster to be presented at the Cognitive Aging Conference in Atlanta, GA, USA. April 16.

Schwartz, S.T., & Alfaro, M. E. (2019, November). *High-throughput phenotyping using deep learning for accurate automatic instance segmentation of fish images*. Poster presented at the UCLA Institute for Digital Research and Education Early Career Research Day in Los Angeles, CA, USA. November 20. ***Best Poster Award**

Siegel, A. L. M., **Schwartz, S. T.**, & Castel, A. D. (2019, November). *Memory and metamemory for the location of items: The effects of information importance and encoding difficulty*. Poster presented at the Psychonomic Society's 60th Annual Meeting in Montréal, Quebec, Canada. November 16.

Whatley, M. C., **Schwartz, S. T.**, Block, J. B., Siegel, A. L. M., & Castel, A. D. (2019, November). *One bad apple: Visual memory and misinformation for the Apple logo*. Poster presented at the Psychonomic Society's 60th Annual Meeting in Montréal, Quebec, Canada. November 15.

Schwartz, S. T., Karan, E. A., & Alfaro, M. E. (2019, May). *Using machine learning to quantify color pattern diversity in Butterflyfishes (Chaetodontidae)*. Poster presented at the 22nd Annual UCLA Biology Research Symposium in Los Angeles, CA, USA. May 22.

Schwartz, S. T., Siegel, A. L. M., & Castel, A. D. (2019, May). *Risks and rewards: Memory for positive and negative item-location associations*. Poster presented at the 22nd UCLA Annual Undergraduate Research Poster Day in Los Angeles, CA, USA. May 21. ***UCLA Dean's Research Prize Nominee**

Schwartz, S. T., Siegel, A. L. M., & Castel, A. D. (2019, May). *Risks and rewards: Memory for positive and negative item-location associations*. Poster presented at the 28th Annual UCLA Psychology Undergraduate Research Conference in Los Angeles, CA, USA. May 10.

Schwartz, S. T., Siegel, A. L. M., & Castel, A. D. (2019, May). *Memory for positive and negative item-location associations*. Poster presented at Whittier College's 17th Annual Psi Chi Psychology Undergraduate Research Conference in Whittier, CA, USA. May 4.

Karan, E. A., & **Schwartz, S. T.** (2019, May). *Quantitative approaches to studying color pattern evolution*. Guest Lecture given at Claremont McKenna College, Biology Department in Claremont, CA, USA. May 2.

Schwartz, S. T. (2019, May). *Risks and rewards: Memory for positive and negative item-location associations*. Departmental Highest Honors Thesis Seminar Talk given at the UCLA Department of Psychology in Los Angeles, CA, USA. May 1.

RESEARCH EXPERIENCE

Alfaro Lab, UCLA Department of Ecology and Evolutionary Biology

Graduate Student Researcher

Undergraduate Honors Thesis Research Assistant

Principal Investigator: Dr. Michael E. Alfaro

- Designed a novel machine learning pipeline to quantify evolution of color pattern in reef fishes.
- Actively mentor undergraduate students while conducting master's thesis research.

Los Angeles, CA

September 2019 – Present

September 2018 – August 2019

Memory and Lifespan Cognition Lab, UCLA Department of Psychology

Graduate Student Collaborator

Undergraduate Highest Honors Thesis Research Assistant

Principal Investigator: Dr. Alan D. Castel

- Developed computational approaches to study value-directed remembering and visuospatial memory.
- Expanding computational paradigms to investigate memory and metamemory in visuo- and audio-spatial domains.

Los Angeles, CA

September 2019 – Present

February 2018 – August 2019

Foster Lab, UCLA Department of Sociology

Undergraduate Research Assistant

Principal Investigator: Dr. Jacob G. Foster

- Studied cultural evolution by investigating rates of speciation and diversification of television shows.

Los Angeles, CA

January 2019 – June 2019

Garg Lab, UCLA Department of Chemistry and Biochemistry

Undergraduate Software Research Consultant

Principal Investigator: Dr. Neil K. Garg

- Co-developed a novel tool for visualizing 3D molecular structures interactively in large-lectures and research conference poster sessions through a custom written interface and unique QR code generator application.
<https://qrchem.net>

Los Angeles, CA

January 2018 – July 2018

NASA Jet Propulsion Laboratory (JPL)

Computational Chemistry Researcher

Mentor: Dr. William N. Warner

La Cañada Flintridge, CA

October 2013 – March 2014

TEACHING EXPERIENCE

Ecology and Evolutionary Biology (EEB) 156: Biology and Social Justice, UCLA

Teaching Assistant, Fall 2019 (41 Undergraduates)

EEB C177/C234: Practical Computing for Evolutionary Biologists and Ecologists, UCLA

Teaching Assistant, Winter 2020 (17 Undergraduates, 6 Graduates)

EEB 201: Introduction to R for Ecology and Evolutionary Biology, UCLA

Coding Workshop Assistant, Fall 2019 (21 Graduates)

TECHNICAL AND LABORATORY SKILLS

Programming (11 Years of Experience)

- C++, Python, MATLAB, R, Java, PHP, HTML5, CSS3, JavaScript, SQL
- *Machine and Deep Learning*: TensorFlow, Keras, AlexNet, Mask R-CNN, & DCNN Construction
- *Other Libraries & Tools*: Regular Expressions, Jekyll, jsPsych, Collector, Psychtoolbox, Jmol

Applications & Operating Systems

- Bash, Git, L^AT_EX, SPSS, Microsoft Excel, R-Studio, Markdown, Xcode, Jupyter Notebook, Anaconda
- Adobe Photoshop, Adobe Illustrator, Adobe InDesign, Adobe Lightroom, Adobe XD CC
- MacOS, Windows, Linux, iOS, Android

Statistical

- Analysis of variance, correlation, chi-square, regression, hierarchical linear modeling (HLM), Principal Component Analysis (PCA), Independent Component Analysis (ICA), Bayesian inference, Multidimensional scaling, partitional k-means & hierarchical agglomerative clustering, dendrogram analysis

Laboratory

- Functional Neuroimaging (fMRI) & FMRIB Software Library (FSL)
- Titrations, Micropipetting, Gel Electrophoresis, Mass Spectrometry, IR, H,C-NMR Analysis

PROFESSIONAL TECHNICAL EXPERIENCE

Kidz Dental Care

Freelance Designer & Web Developer

Porter Ranch, CA

July 2017 – November 2019

- Designed, built, and maintained pediatric dentistry's responsive websites. <https://kidzdentalcare.com> and <https://kidzdentalcare661.com>
- Created HIPAA-compliant secure patient information pipeline that generates and transmits secured PDF information forms for a streamlined patient-doctor experience.

Associated Students UCLA (ASUCLA)

Lead Student Full-Stack Web Developer/Technical Assistant

Los Angeles, CA

January 2016 – March 2019

- Redesigned entire ASUCLA institutional website and implemented backend for Board Members to access and edit site content. asucla.ucla.edu
- Assisted in designing layout and developed backend JavaScript solutions for responsive headers on the new UCLA Store e-commerce website. shop.uclastore.com
- Developed a JavaScript kiosk program to run historical timeline of UCLA in Ackerman Union Level 1.
- Designed and programmed an [ASUCLA Store Reward Points Checker](#) and digital dynamic menu boards for on-campus restaurants.
- Designed, coded, and sent out weekly mass email promotions for 12 UCLA campus stores.

LanguageBird[®], LLC

Lead Full-Stack Developer

Los Angeles, CA

July 2016 – March 2018

- Developed and managed dynamic user experience for an accredited online school providing WASC, University of California, and NCAA approved online 1:1 foreign language courses and credit to over 1000 high school students, worldwide. <https://languagebird.com>

LEADERSHIP AND ACADEMIC SERVICE

Splash@UCLA

Volunteer Teacher

Los Angeles, CA

February 1st, 2020

Designed and taught two, one-day science classes for high-school students:

- **S193:** Why do we remember and why do we forget? Examining the role of value and selectivity in visuospatial memory, learning, and attention
- **S194:** The Evolution of Color Pattern in Reef Fish

UCLA Bruin Day for Admitted Freshmen

Los Angeles, CA

Volunteer

April 2016, 2017, 2018, 2019

- Volunteered annually to assist newly admitted freshmen experience what it means to be a Bruin.
- Helped students submit their Statement of Intent to Register (SIR) for UCLA.
- Taught students about the world-class academic, research, and job opportunities available at UCLA.

Academic Excellence Tour with UCLA Undergraduate Admission

Los Angeles, CA

Volunteer Tour Guide

August 17th, 2019

- Led a guided campus tour for celebrated scholars and their families considering applying to UCLA as part of the *Celebrating Academic Excellence Reception* with UCLA Undergraduate Admission.

UCLA Center for Accessible Education (CAE)

Los Angeles, CA

Volunteer Notetaker

January 2017 – September 2018

Provided quality, detailed notes for students with registered accommodations, for the following courses:

- Psychology 20A: Introduction to MATLAB Programming (Winter 2017)
- Psychology 100B: Research Methods in Psychology (Fall 2017)
- Psychology 124C: Human Memory (Winter 2018)
- Ecology and Evolutionary Biology 186: Evolutionary Medicine (Summer 2018)

Back Off Bully Organization

Chatsworth, CA

Co-Founder & Web Developer

March 2014 – Present

Back Off Bully is an organization that is working to end the bullying epidemic and give self-confidence to those affected by it.

- Built an international network, in over four countries, of thousands of children and adults through website outreach and social media campaigns.
- Established connection and relationship, through outreach, with our organization's Main Sponsor: **Nancy Cartwright** (Voice of Bart Simpson from *The Simpsons*). backoffbully.org

MEDICAL VOLUNTEER EXPERIENCE

(1,315 Medical Volunteer Hours)

UCLA Health

Santa Monica, CA

Care Extender Internship, Department Coordinator Assistant (DCA)

January 2017 – February 2019

- Shadowed out-patient surgeons and radiology technicians for in-patient and emergency department cases, and checked in patients for early-morning surgeries in admissions.
- *Department Coordinator Assistant*: Audited fellow Care Extender Volunteers throughout their assigned departments to maintain the quality and integrity of the Care Extender Internship Program.
- Volunteered 814 hours.

UCLA Health, Faculty Practice Group (FPG)

Los Angeles, CA

Population Health Care Coordinator Intern

June 2017 – September 2018

- Outreached to patients via telephone encounters to obtain missing medical procedure records.
- Maintained innovative Excel Database from UCLA patients' Electronic Medical Records ("CareConnect") and 9 local hospice agencies for tracking and drawing new statistical conclusions regarding UCLA hospice referrals to external agencies.
- Volunteered 451 hours.

Providence Tarzana Medical Center

Tarzana, CA

Engineering Facilities Intern

September 2014 – January 2015

- Assisted clinical staff with errands, clerical duties, and medical technology-related problems; helped patients with ambulatory tasks; discharged patients.
- Volunteered 50 hours.

AWARDS

Timothy Chheang Memorial Scholarship Award, UCLA (\$1,000)	June 2019
Highest Departmental Thesis Honors, Psychology, UCLA	June 2019
Departmental Thesis Honors, Ecology and Evolutionary Biology, UCLA	June 2019
Chancellor's Service Award, UCLA	June 2019
Dean's Prize Nominee for Excellence in Undergraduate Faculty-Mentored Research, UCLA	April 2019
Distinguished Care Extender of the Rotation, UCLA Health	October 2018
Certificate of Congressional Recognition, City of L.A. & 12th Council District	July 2014

PRESS COVERAGE

Nakahara, E. (2018, July 30). Student-developed tool brings 3D molecular models to smartphone screen. *Daily Bruin*. Retrieved from <https://dailybruin.com/2018/07/30/student-developed-tool-brings-3d-molecular-models-to-smartphone-screen/>.

PROFESSIONAL AFFILIATIONS

- Society for the Study of Evolution, *Graduate Student Member* (2019–)
- American Society of Naturalists, *Graduate Student Member* (2019–)
- Society of Systematic Biologists, *Graduate Student Member* (2019–)
- Psychonomic Society, *Graduate Student Member* (2019–)
- American Psychological Association (APA), *Graduate Student Affiliate, Member: American Psychological Association of Graduate Students (APAGS)* (2019–)
- APA, *Undergraduate Student Affiliate* (2018–2019)
- Association for Psychological Science (APS), *Graduate Student Affiliate* (2019–)
- APS, *Undergraduate Student Affiliate* (2018–2019)

UNDERGRADUATES MENTORED

Maya Chari, September 2019 – Present
 Aubrey Butler, October 2019 – Present
 Charles Wang, April 2019 – September 2019