

# Shawn T. Schwartz

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## EDUCATION

### M.S. in Biology, University of California, Los Angeles

Expected June 2021

*Thesis Advisor:* Dr. Michael E. Alfaro

### B.S. in Cognitive Science, University of California, Los Angeles

June 2019

*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

### B.S. in Biology, University of California, Los Angeles

June 2019

*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

## PEER-REVIEWED PUBLICATIONS

4. Whatley, M. C., Siegel, A. L. M., **Schwartz, S. T.**, Silaj, K. M., & Castel, A. D. (in press). Younger and older adults' mood and expectations regarding aging during COVID-19. *Gerontology and Geriatric Medicine*.
3. **Schwartz, S. T.**, Siegel, A. L. M., & Castel, A. D. (2020). Strategic encoding and enhanced memory for positive value-location associations. *Memory & Cognition*, 48, 1015-1031. doi:10.3758/s13421-020-01034-4
2. 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. doi:10.1093/icb/icz119
1. 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(7), 95-96. doi:10.1038/s41570-018-0021-y

## MANUSCRIPTS UNDER REVIEW & IN PREPARATION

### Manuscripts Under Review:

1. Siegel, A. L. M., **Schwartz, S. T.**, & Castel, A. D. (in revision). Comparing automatic and strategic influences on emotional item-location binding in aging. *Cognition and Emotion*. Manuscript in revision.
2. Siegel, A. L. M., **Schwartz, S. T.**, & Castel, A. D. (in revision). Selective memory disrupted in intra-modal dual-task encoding conditions. *Journal of Memory and Language*. Manuscript in revision.
3. Siegel, A. L. M., **Schwartz, S. T.**, & Castel, A. D. (under review). When prioritizing isn't the priority: Identifying a metacognitive tradeoff between memory selectivity and monitoring. Manuscript under review.
4. **Schwartz, S. T.**, & Alfaro, M. E. (under review). *sashimi*: Automatic high-throughput pipeline for organismal image segmentation using deep learning. Manuscript under review.
5. Silaj, K. M., **Schwartz, S. T.**, Siegel, A. L. M., & Castel, A. D. (under review). Test anxiety and metacognitive performance in the classroom. Manuscript under review.

## Manuscripts in Preparation:

\*Denotes lead co-authorship

1. **Schwartz, S. T.**, Tsai, W. L. E., Karan, E. A., & Alfaro, M. E. (in prep). *charisma*: an R tool to automatically determine discrete color classes for high-throughput color pattern analysis. Manuscript in preparation.
2. Makanani, S. K. \*, **Schwartz, S. T.\***, Snedden, C. E. \*, Blakey, R. V., Borremans, B., Endo, A., Espericueta, L., Gamble, A., Helman, S. K., Valencia, A., Alfaro, M. E., & Lloyd-Smith, J. O. (in prep). SARS-CoV-2: Cross-scale insights from ecology and evolution. Manuscript in preparation.
3. Whatley, M. C., **Schwartz, S. T.**, Block, J. B., & Castel, A. D. (in prep). One bad apple: Visual memory and misinformation for the Apple logo. Manuscript in preparation.

## CONFERENCE PRESENTATIONS & INVITED TALKS

11. Silaj, K. M., **Schwartz, S. T.**, Siegel, A. L. M., & Castel, A. D. (2020, September). *Test anxiety and metacognitive performance in the classroom*. Poster to be presented at the UC Psychology Teaching & Learning Virtual Conference 2020 online. September 18.
10. 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. *\*Postponed indefinitely due to the COVID-19 pandemic\**
9. **Schwartz, S. T.**, & Alfaro, M. E. (2019, November). *High-throughput phenoscaping using deep learning for accurate automatic instance segmentation of fish images*. Poster presented at the UCLA Institute for Digital Research and Education Early Career Researcher Day in Los Angeles, CA, USA. November 20. **\*Awarded 1 of 4 Best Poster Awards of 40 posters\***
8. 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.
7. 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.
6. **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.
5. **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 Annual Undergraduate Research Poster Day in Los Angeles, CA, USA. May 21. **\*UCLA Dean's Research Prize Nominee\***
4. **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.
3. **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.
2. Karan, E. A., & **Schwartz, S. T.** (2019, May). *Quantitative approaches to studying color pattern evolution*. Invited Guest Lecture given at Claremont McKenna College, W. M. Keck Science Center Department of Biology in Claremont, CA, USA. May 2.
1. **Schwartz, S. T.** (2019, May). *Risks and rewards: Memory for positive and negative item-location associations*. Highest Departmental Honors Thesis Seminar Talk given at the UCLA Department of Psychology in Los Angeles, CA, USA. May 1.

## FEATURED PRESS COVERAGE

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2. "Early Career Research Day winner improves neural network training for biological research." *UCLA Institute for Digital Research & Education*. (<https://idre.ucla.edu/featured/early-career-research-day-winner-improves-neural-network-training-for-biological-research>) by Ventura, K. (2020, July 1).
1. "Student-developed tool brings 3D molecular models to smartphone screen." *Daily Bruin*. (<https://dailybruin.com/2018/07/30/student-developed-tool-brings-3d-molecular-models-to-smartphone-screen>) by Nakahara, E. (2018, July 30).

## TEACHING EXPERIENCE

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### Research Methods in Psychology (PSYCH 100B), UCLA

- *Teaching Associate*, Summer 2020, Overall rating: 8.65 (out of 9.00) [20 Undergraduates]
- *Teaching Associate*, Fall 2020, Overall rating: *forthcoming* (out of 9.00) [21 Undergraduates]

### Biology and Social Justice (EE BIOL 156), UCLA

- *Teaching Assistant*, Fall 2019, Overall rating: 8.00 (out of 9.00) [41 Undergraduates]
- *Teaching Associate*, Summer 2020, Overall rating: *forthcoming* (out of 9.00) [41 Undergraduates]

### Evolutionary Medicine (EE BIOL 185), UCLA

- *Teaching Assistant*, Spring 2020, Overall rating: 8.54 (out of 9.00) [36 Undergraduates]

### Introduction to R for Ecology and Evolutionary Biology (EE BIOL 201), UCLA

- *Workshop Assistant*, Fall 2019, *No Ratings Provided* [21 Graduate Students]

### Practical Computing for Evolutionary Biologists and Ecologists (EE BIOL C177/C234), UCLA

- *Teaching Assistant*, Winter 2020, *No Ratings Provided* [14 Undergraduates, 5 Graduate Students]

## PROFESSIONAL DEVELOPMENT

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### Center for the Integration of Research, Teaching and Learning (CIRTL)

#### CIRTL Practitioner, CIRTL@UCLA

January 2020 – Present

- Systematically use evidence-based teaching methods to advance teaching and learning practices
- Actively implementing a Teaching-as-Research project during Spring & Summer 2020
- Working towards completing requirements for the *CIRTL Scholar* certification

## TECHNICAL & LABORATORY SKILLS

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### Programming (11 yrs. experience)

- *Languages*: Python, C++, R, MATLAB, PHP, HTML5, CSS3, JavaScript, SQL
- *Machine Learning*: TensorFlow, Keras, AlexNet, Mask R-CNN, Deep Learning
- *Imaging*: image adjacency analysis, boundary strength analysis, color spaces
- *Other Tools*: regular expressions, Jekyll, jsPsych, Psychtoolbox, Collector, Jmol

### Applications

- Bash, Git,  $\LaTeX$ , Markdown, SPSS, Microsoft Excel, R-Studio, Xcode, Jupyter Notebook, ImageJ
- Adobe Photoshop, Adobe Illustrator, Adobe InDesign

### Statistical Analyses

- analysis of variance, correlation, chi-square, regression, hierarchical linear (multilevel) modeling (HLM), principal component analysis (PCA), Bayesian inference, multidimensional scaling, t-SNE, partitional K-means & hierarchical agglomerative clustering, dendrogram analysis

### Phylogenetic Comparative Methods

- phylogenetic generalized least squares (PGLS), phylogenetic independent contrasts, ancestral state reconstruction, Bayesian Analysis of Macroevolutionary Mixtures (BAMM), Markov chain Monte Carlo (MCMC)

### Laboratory

- Functional Neuroimaging (fMRI) & FMRI Software Library (FSL)
- Titrations, Micropipetting, Gel Electrophoresis, Mass Spectrometry

## RESEARCH EXPERIENCE

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### **Graduate Student Researcher**, Alfaro Lab, UCLA

September 2019 – Present

Department of Ecology &amp; Evolutionary Biology

Principal investigator: Dr. Michael E. Alfaro

- Developing novel computational pipelines with deep learning in Python and R for high-throughput approaches to studying color pattern diversity and evolution (in preparation)
- Writing simulations in C++ to study fish jaw evolution and biomechanics
- Won best post award from UCLA Institute for Digital Research and Education for deep learning software I authored (under review)
- Actively mentor 2 undergraduate students in research projects while conducting master's thesis research

### **Graduate Student Collaborator**, Memory & Lifespan Cognition Lab, UCLA

September 2019 – Present

Department of Psychology

Principal investigator: Dr. Alan D. Castel

- Authoring software to investigate memory and metamemory paradigms in both visuo- and audio-spatial domains (1 under review & 1 in revision)
- Collected data from hundreds of human subjects using the UCLA SONA subject pool, Amazon MTurk, and CloudResearch Prime Panels for a comparative aging study (1 under review, 1 published in *Gerontology and Geriatric Medicine*)
- Presented two posters at an international psychology research conference
- Actively mentor 1 undergraduate honors thesis student

### **Honors Research Assistant**, Alfaro Lab, UCLA

September 2018 – August 2019

Department of Ecology &amp; Evolutionary Biology

Principal investigator: Dr. Michael E. Alfaro

- Designed a machine learning pipeline to quantify color pattern evolution in phenotypically diverse coral reef fishes (co-authored the published manuscript in *Integrative and Comparative Biology*)
- Presented an invited guest lecture on computational approaches to studying color pattern evolution at Claremont McKenna College in Claremont, CA

### **Research Assistant**, Foster Lab, UCLA

January 2019 – June 2019

Department of Sociology

Principal investigator: Dr. Jacob G. Foster

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

### **Highest Honors Research Assistant**, Memory & Lifespan Cognition Lab, UCLA

February 2018 – August 2019

Department of Psychology

Principal investigator: Dr. Alan D. Castel

- Programmed an experimental paradigm to study value-directed remembering in the visuospatial domain
- 1 of 2 recipients of 22 honors thesis cohort students to receive *highest departmental honors* distinction with a memorial scholarship award for honors thesis work
- Wrote and edited the published manuscript in *Memory & Cognition*

### **Software Research Consultant**, Garg Lab, UCLA

January 2018 – July 2018

Department of Chemistry and Biochemistry

Principal investigator: Dr. Neil K. Garg

- Co-authored a novel software tool in *Nature Reviews Chemistry* for interactively visualizing 3D molecular structures in large-lecture and research conference poster sessions through a custom written web-interface and QR code generator (<https://qrchem.net>)

### **Computational Chemistry Researcher**, NASA JPL, Pasadena, CA

October 2013 – March 2014

Mentor: Dr. William N. Warner

- Developed software tool to compute minimal energetic interactions between simulated 3D water molecular structures

## ACADEMIC HONORS & AWARDS

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June 2020	Graduate COVID-19 Impact Grant, UCLA (\$1,456)
May 2020	CARES Universal Impact Grant, UCLA (\$200)
Nov. 2019	UCLA IDRE Early Career Research Day Best Poster Award
June 2019	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	True Bruin Traditions Keeper '19, UCLA
April 2019	Dean's Prize Nominee for Excellence in Undergraduate Faculty-Mentored Research, UCLA
Oct. 2018	Distinguished Care Extender of the Rotation, UCLA Health
July 2014	Certificate of Congressional Recognition, City of L.A. & 12th Council District

## LEADERSHIP & ACADEMIC SERVICE

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### Los Angeles County Science and Engineering Fair

**Los Angeles, CA**

*Volunteer Judge: Mathematics & Computer Sciences Senior Division*

March 20, 2020

- Judged and interviewed 18 high school seniors about their projects
- Ranked projects for awards with caucus of expert computer scientists

### Splash@UCLA

**Los Angeles, CA**

*Volunteer Teacher*

February 1, 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 Newly Admitted Students

**Los Angeles, CA**

*Volunteer*

April 2016, 2017, 2018, 2019

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

### UCLA Undergraduate Admission

**Los Angeles, CA**

*Volunteer Tour Guide for Academic Excellence Tour*

August 17, 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: Clinical Perspective on Medical, Surgical, and Psychiatric Disorders (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 ([backoffbully.org](http://backoffbully.org))
- Established connection and relationship, through community outreach, with our organization's Main Sponsor: **Nancy Cartwright** (Voice of Bart Simpson from *The Simpsons*)

## UCLA UNDERGRADUATES MENTORED

Mackenzie Perillo\*\*, May 2020 – Present  
 Maya Chari, September 2019 – Present  
 Sean Webster\*, February 2020 – June 2020  
 Bruce Zhang, February 2020 – June 2020

Nimrat Brar\*\*, May 2020 – Present  
 Kyle Xu, January 2020 – June 2020  
 Aubrey Butler, October 2019 – January 2020  
 Charles Wang, April 2019 – September 2019

\*Supervised undergraduate senior capstone project

\*\*Supervised undergraduate honors thesis project

## SOCIETY MEMBERSHIP

Psychonomic Society, Association for Psychological Science (APS), American Psychological Association (APA), Society for the Study of Evolution, American Society of Naturalists, Society of Systematic Biologists

## REVIEWING EXPERIENCE

Association for Psychological Science (APS) 2020 Student Research Award

## PROFESSIONAL TECHNICAL EXPERIENCE

### Associated Students UCLA (ASUCLA)

**Los Angeles, CA**

*Freelance Designer & Web Developer*

June 2020 – July 2020

- Solely designed, programmed, and maintained the Virtual UCLA New Student Orientation website with ASUCLA in rapid time with the sudden shift to an online orientation in response to the COVID-19 pandemic (<https://asucla.ucla.edu/summer-from-the-union/>)
- Aided in managing programming for mass email marketing during this period for the UCLA Store and UCLA Athletics Bruin Team Shop online marketplaces

### Kidz Dental Care

**Porter Ranch, CA**

*Freelance Designer & Web Developer*

July 2017 – November 2019

- Designed, built, and maintained pediatric dentistry's responsive websites (<https://kidzdentalcare.com>, <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)

**Los Angeles, CA**

*Lead Full-Stack Web Developer/Technical Assistant*

January 2016 – March 2019

- Redesigned entire ASUCLA institutional website and implemented backend for Board Members to access and edit site content ([asucla.ucla.edu](https://asucla.ucla.edu))
- Assisted in designing layout and developed custom JavaScript for the new UCLA Store e-commerce website ([shop.uclastore.com](https://shop.uclastore.com))
- Developed a JavaScript kiosk program to run historical timeline of UCLA in Ackerman Student Union
- 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

**Los Angeles, CA**

*Lead Full-Stack Developer*

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>)

## MEDICAL VOLUNTEER EXPERIENCE

(1,315 TOTAL MEDICAL VOLUNTEER HOURS)

### UCLA Health

### Santa Monica, CA

*Care Extender Internship, Department Coordinator Assistant*

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 trends 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