Sean P. Anderson

Palo Alto, CA

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Education

Stanford University — *Palo Alto, CA*
Ph.D. in Psychology — *Sep 2023–Present*

University of Michigan — *Ann Arbor, MI*
M.S. in Computer Science and Engineering — *Sep 2021–Dec 2022*

University of Michigan — *Ann Arbor, MI*
B.S. in Cognitive Science, with Highest Honors and High Distinction (Top 10%) — *Sep 2016–Aug 2020*

University of Michigan — *Ann Arbor, MI*
B.M. in Performance (French Horn), with Highest Honors — *Sep 2016–Aug 2020*

Grants & Fellowships

2024 **Norman H. Anderson Research Fund**, Department of Psychology, Stanford University
CogSci

2023 **Graduate Research Fellowship**, National Science Foundation

2022 **William R. and Flora Hewlett Foundation Conference Travel Grant**, University of Michigan - Rackham
Int'l Conference on Computational Creativity

2022 **Student Registration Scholarship**, Association for Computational Creativity
Int'l Conference on Computational Creativity

2019 **Student Travel Award**, National Academy of Sciences
Arthur M. Sackler Colloquium

2019 **Conference Travel Grant**, Weinberg Institute for Cognitive Science, University of Michigan
CogSci, ICCM/MathPsych

2019 **Conference Travel Grant**, Weinberg Institute for Cognitive Science, University of Michigan
NeurIPS

Winter 2019 **CogSci Student Fellowship**, Weinberg Institute for Cognitive Science, University of Michigan

Summer 2018 **CogSci Student Fellowship**, Weinberg Institute for Cognitive Science, University of Michigan

Winter 2018 **CogSci Student Fellowship**, Weinberg Institute for Cognitive Science, University of Michigan

Fall 2017 **CogSci Student Fellowship**, Weinberg Institute for Cognitive Science, University of Michigan

Summer 2017 **CogSci Student Fellowship**, Weinberg Institute for Cognitive Science, University of Michigan

2016 **Board of Regents Merit Scholarship**, University of Michigan

Academic Honors

2021 **Arthur Miller Creative Arts Award**, University of Michigan
1/9 prizes for exceptional honors theses in liberal arts

2021 **Samuel D. Epstein Award**, Weinberg Institute for Cognitive Science, University of Michigan
Outstanding honors thesis in theoretical cognitive science

2021 **James B. Angell Scholar**, University of Michigan
Seven consecutive terms of all A's

2019 **Research Spotlight (web)**, Weinberg Institute for Cognitive Science, University of Michigan

2016–2020 **University Honors**, University of Michigan

Research Experience

Cognitive and Data Science Lab — *Rutgers University–Newark*
Research Assistant — *Sep 2020–Aug 2023*
Mentors: Prof. Patrick Shafto, Dr. Scott Cheng-Hsin Yang
Working on human and machine cooperation in projects such as DARPA XAI (conference paper), DARPA ASIST (poster), and explanations of RL systems (ongoing), drawing upon the cognitive science of cooperative communication.

The Cognitive Foundations of Social Minds — *University of Michigan*
Research Assistant — *Jul 2021–Present*
Mentors: Prof. Richard Lewis, Dr. Max Kleiman-Weiner
Using Reinforcement Learning and Unity games to investigate the computational capacities underlying cooperation in primates, human children, and adults.

Undergraduate Research Experience

Cognition, Control, and Action Lab — *University of Michigan*
Research Assistant — *May 2017–Aug 2020*
Mentors: Prof. Taraz G. Lee
Implemented and analyzed experiments in motor learning, leading to a first-author publication on motivation and knowledge in skilled motor performance.

Generative Linguistics and Music Project — *University of Michigan*
Research Assistant — *Sep 2019–Aug 2020*
Mentors: Prof. Somangshu Mukherji
Honors Thesis title: A linguistic model of minimalist syntax composes *tebe poem*
Drawing on Minimalist generative linguistics, I built a computational model of Western tonal harmony that recovered the underlying structure of Bortniansky's *Tebe poem*. I presented my award-winning honors thesis in a public-facing talk to artists interested in data science.

Language and Cognitive Architecture Lab — *University of Michigan*
Research Assistant — *Jun 2019–Sep 2019*
Mentors: Prof. Richard Lewis, Dr. Pyeong Whan Cho
Designed tools for simulating probabilistic context-free grammars (PCFG) to investigate how we process sentences while reading.

Laboratory of Dr. Chandra Sripada *University of Michigan*

Research Assistant *Jun 2018–Dec 2018*

Mentors: Prof. Chandra Sripada

For an fMRI study on spontaneous thought and the default-mode network, I developed methods for removing extraneous noise from in-scanner speech recordings.

Music Theory @ Michigan Institute for Data Science Project *University of Michigan*

Research Assistant *Sep 2018–Dec 2018*

Mentors: Prof. René Rusch

Analyzed tonal structures in German part-song from the nineteenth century.

Publications

Journal Articles

Rapport Munro, E., Koopman, S. E., Anderson, S. P., Schweller, K., Röhr, H., Kleiman-Weiner, M., Lewis, R., Klein, B., Allritz, M., Robinson, L. M., Dolins, F. L., & Call, J. (2025). Chimpanzees (Pan troglodytes) and bonobos (Pan paniscus) chase prey around obstacles in virtual environments. *Journal of Comparative Psychology*. Advance online publication. doi: https://dx.doi.org/10.1037/com0000402

Anderson, S. P., Adkins, T. J., Gary, B. S., & Lee, T. G. (2020). Rewards interact with explicit knowledge to enhance skilled motor performance. *Journal of Neurophysiology*, 123(6), 2476-2490. doi: https://doi.org/10.1152/jn.00575.2019

Conference Proceedings

McCarthy, W.P., Anderson, S. P., Fan, J. E. (2024, July). How does assembling an object affect memory for it? In *Proceedings of the 46th Annual Meeting of the Cognitive Science Society*. Rotterdam, Netherlands.

Folke, T., Yang, S. C.-H., Anderson, S., & Shafto, P. (2021, April). Explainable AI for medical imaging: explaining pneumothorax diagnoses with Bayesian teaching. In *Proceedings SPIE 11746, Artificial Intelligence and Machine Learning for Multi-Domain Operations Applications III* (p. 117462J). International Society for Optics and Photonics. doi: https://doi.org/10.1117/12.2585967

Invited Talks

Anderson, S. P. (2021, October). When is machine learning not enough? Capturing common structures across music and language. Presented at "Building equitable ecologies of artificial intelligence and machine learning: A mini-symposium with artists & data scientists," Data Science and Machine Learning for Artists Workshop. Ann Arbor, Michigan.

Presentations

Anderson, S. P. (2022, June). A proposal for automatic harmony analysis with Minimalist syntax. Presented at the 13th International Conference on Computational Creativity, Doctoral Consortium. Bolzano, Italy.

Yang, S. C.-H., Anderson, S., Wang, P., Rank, C., Folke, T., & Shafto, P. (2021, July). Inferring knowledge from behavior in search-and-rescue tasks. Poster presented at the 43rd Annual Conference of the Cognitive Science Society. Vienna, Austria.

Anderson, S. P., Adkins, T. J., Gary, B. S., & Lee, T. G. (2019, July). Explicit cues lead to reward-related enhancements in motor skill performance. Poster presented at the 41st Annual Conference of the Cognitive Science Society. Montréal, Québec, Canada.

Anderson, S. P., Adkins, T. J., Gary, B. S., & Lee, T. G. (2019, March). Explicit cues lead to reward-related enhancements in motor skill performance. Poster presented at the 2019 CogSci Community Undergraduate Cognitive Science Colloquium. Ann Arbor, Michigan.

Anderson, S. P. (2018, October). Studying creativity. Presented during the CogSci Community Weekly Discussion. Ann Arbor, Michigan.

Anderson, S. P., & Kamper, D. (2018, April). College admissions: making the most of high school. Presented at the 3rd Refugees to College Seminar Series at Central Academy. Ann Arbor, Michigan.

Kamper, D., & Anderson, S. P. (2018, February). College admissions: an overview for parents. Presented at the 1st Refugees to College Seminar Series at Central Academy. Ann Arbor, Michigan.

Teaching

UARTS 260: Telemann Chorale Project — *University of Michigan*

Teaching Assistant — *Fall 2021*

Mentors: Prof. Somangshu Mukherji

Served as a TA in one of several Faculty Engineering+Arts Student Teams (FEAST) at University of Michigan. Advised a team of 10 undergraduates in developing a computational model (constraint satisfaction) of Baroque chorale structure and part-writing.

Service

Computational Cognitive Science Reading Group — *Stanford Psychology*

Organizer — *Apr 2024–present*

COGGRAPH 2024 Workshop at CogSci '24 — *Rotterdam, Netherlands*

Co-Organizer — *Jul 2024*

Graduate Program Committee — *Stanford Psychology*

Student Representative — *Sep 2023–Sep 2024*

NeurIPS 2019 — *Vancouver, BC, Canada*

Student Volunteer — *Dec 2019*

Refugees to College — *Ann Arbor, MI*

Vice Director, Volunteer Case Worker — *Oct 2016–Aug 2020*

Standing with UNHCR's #WithRefugees Coalition, we work to increase resettled refugees' access to higher education and professional opportunities through educational workshops and bespoke consulting.