

Alexander J. Simon

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EDUCATION

PhD in Neuroscience

Yale University School of Medicine

In progress

B.S. in Cell and Molecular Biology

San Francisco State University

Minor: chemistry

Varsity NCAA student athlete (4 years, wrestling)

2015

RESEARCH POSITIONS

Graduate Student Researcher

Yale University Interdepartmental Neuroscience Program

I am studying the large-scale neural network dynamics that underlie optimal cognitive functioning, and how these are impaired in psychiatric disorders (e.g., PTSD, bipolar, ADHD). I am using this information to improve machine learning in precision medicine aimed to predict disease trajectory and treatment response.

2022-present

Research Associate

Memory and Aging Center, University of California San Francisco

Studied sleep abnormalities in patients with neurodegenerative diseases. Wrote software processing sleep polysomnography and analyzing sleep microarchitecture data.

2020-2022

Data Scientist

Neuroscape Center, University of California San Francisco

Investigated the efficacy of meditation, videogame, and exercise-based methods for enhancing cognition using a variety of analytical techniques. Analyzed and wrote signal processing pipelines for electroencephalography (EEG), functional MRI (fMRI), electrocardiography (EKG), heart rate variability (HRV), skin conductance (GSR), electromyography (EMG), electrogastrography (EGG), and behavioral data. Studied executive functioning differences in aging and in psychiatric disorders.

2017-2022

Clinical Research Coordinator

The Gazzaley Laboratory, University of California San Francisco

Coordinated studies on enhancing cognition in healthy and clinical populations.

2015-2017

Research Assistant

The Gazzaley Laboratory, University of California San Francisco

Studied the interactions between stress and attention.

2014-2015

AWARDS AND FELLOWSHIPS

McDougal Career Fellowship

July 2023-May 2024

LEADERSHIP ROLES

Cognitive Neuroscience Society Trainee Association

2019-2022

Role: Vice President

Organized networking events and co-hosted panels at the 2020 and 2021 Cognitive Neuroscience Society Annual Conferences.

Neuroscape Virtual Conference Organization Committee

2020

Role: Co-host

Organized and co-hosted virtual poster and data blitz sessions.

Cognitive Neuroscience Society Trainee Association

2018-2019

Role: Officer

Facilitated events hosted by the Cognitive Neuroscience Society Trainee Association.

Neuroscape Journal Clubs

2017-2020

Role: Co-organizer

Organized monthly journal clubs within Neuroscape and with collaborators.

Neuroscape Code Reviews

2018-2019

Role: Co-organizer

Organized and hosted monthly meetings to share best practices in scientific programming within Neuroscape and with collaborators.

EEG workshop

2018

Role: Host

Led an EEG processing and analysis workshop that people from various backgrounds attended.

CONFERENCE TALKS

Frontal and Parietal Neural Markers Predict a Clinical Measure of Attention (2018). Bay Area Memory Meeting. Davis, CA.

Polysomnography from 3 Neurodegenerative Disease Populations (2021). Memory and Aging Center Sleep Seminar. San Francisco, CA (virtual).

MEDIA COVERAGE

CNN

10/10/2018

This is Life With Lisa Ling, [How tech withdrawal affects your brain](#)

MENTORING EXPERIENCE

Research Assistant Supervisor 2015-2022

Departments of Neurology and Physiology, University of California San Francisco
Supervised and trained 26 lab volunteers from the community, undergraduate institutions, and Master's programs including UC Berkeley, San Francisco State University, University of San Francisco, and UC Santa Cruz.

UC Berkeley Fung Fellowship Supervisor 2017

Department of Neurology, University of California San Francisco
Trained and supervised a Fung Fellowship recipient from UC Berkeley.

Undergraduate Thesis Supervisor 2017, 2019

Department of Neurology, University of California San Francisco
Trained and supervised two senior thesis projects from San Francisco State University and one from UC Berkeley.

Undergraduate Capstone Project Supervisor 2019

Department of Neurology, University of California San Francisco
Trained and supervised a team of four students working on a bioengineering Capstone Project at UC Berkeley.

High School Internship Mentor

Department of Neurology, University of California San Francisco
Fremont High School, Fremont, CA 2018-2020
Gilroy High School, Gilroy, CA 2017-2019
Lick Wilmerding High School, San Francisco, CA 2021

Tutoring

Wyzant.com
Richmond High School, Richmond, CA 2017-2018
Lowell High School, San Francisco, CA 2015
San Francisco State University, San Francisco, CA 2014-2015

Coaching

Albany Middle School 2018-2019
Head wrestling coach

Lincoln High School 2014-2015
Assistant wrestling coach

Cheyenne Mountain Youth Wrestling Club 2008-2011
Volunteer assistant coach

TECHNICAL SKILLS

- Proficient in programming in python, MATLAB, and shell scripting
- Proficient with neuroimaging signal processing and analysis (EEG and fMRI)
- Proficient with physiological data signal processing and analysis (HRV, GSR, facial expressions, eye tracking, EGG, continuous blood pressure)
- Proficient with back end software development
- Proficient with statistical analysis using SPSS
- Proficient in assessing intervention efficacy
- Experienced in developing supervised machine learning models on neuroimaging data to predict attentional states
- Experienced at communicating (orally and through writing) complex scientific concepts to audiences with widely varying levels of scientific training
- Experience with blog writing

INTERPERSONAL SKILLS

- Managed teams of up to 20 researchers on several highly collaborative projects
- Served as Vice President of an international scientific training organization for 3 years
- Planned, organized, and hosted a virtual scientific conference
- Taught complex neuroimaging signal processing methods to 12 researcher associates in individualized environments
- Experience collaborating with industry partners while in academia
- Experience recruiting, interviewing, hiring, and onboarding research assistants

CONSULTING

Data analyst

JelikaLite Corp

2022-2023

Cortica Healthcare

2019-2020

PEER REVIEW SERVICE

IEEE Transactions on Haptics

Clinical EEG and Neuroscience

PROFESSIONAL AFFILIATIONS

Bay Area Memory Meeting planning committee member

2018-2020

Cognitive Neuroscience Society Trainee Association

2018-2022

Cognitive Neuroscience Society

2017-present

Society for Neuroscience member

2016-present

UNDERGRADUATE HONORS

Dean's List	2013-2015
Interscholastic athletic scholarship recipient	2011-2014
Varsity NCAA wrestler at San Francisco State University	2010-2014
Colorado Greco-Roman wrestling state champion	2010

POSTER PRESENTATIONS

Falgàs, N, Walsh, C, Yack, L, **Simon, AJ**, Kramer, JH, Rosen, HJ, Rabinovici, G, Miller, B, Spina, S, Seeley, WW, Ranasinghe, K, Vossel, K, Neylan, TC, Grinberg, LT. *Behavioral and spectral sleep features in amnesic and atypical Alzheimer's disease*. Sleep Europe Conference (2022). Athens, Greece.

Simon, AJ, Walsh, CM, Ruoff, L, Varbel, J, Heuer, HW, Boxer, AL, Grinberg, LT, Kramer, JH, Miller, BL, Neylan, TC. *Investigation of overnight EEG spectral power in Progressive Supranuclear Palsy (2021)*. UCSF Dementia Day Webinar. (Virtual).

Anguera, JA, Gerdes, MR, Jurigova, BG, **Simon, AJ**, Mittermaier, DR, Gazzaley, A, Marco, EJ. *Can a home-based digital treatment improve neural biomarkers of attention for children with ADHD?* (2020). 16th International Child Neurology Association Congress (ICNC). San Diego, CA.

Anguera, JA, Gerdes, MR, Jurigova, BG, **Simon, AJ**, Mittermaier, DR, Gazzaley, A, Marco, EJ. *Efficacy of Synergized Cognitive-Physical Training for Children with Inattention* (2020). International Society for Autism Research. Seattle, WA.

Simon, AJ, Gallen, CL, Volponi, JJ, Campusano, R, Schachtner, JN, Colville, AB, Verma, A, Ziegler, DA, Mishra, J, Anguera, JA, Gazzaley, A. *Characterizing Optimal Sustained Attention in Older Versus Young Adults Using EEG* (2020). Cognitive Neuroscience Society annual meeting. Boston, MA.

Simon, AJ, Anguera, JA, Ziegler, DA, Gallen, CL, Volponi, JJ, Campusano, R, Mishra, J, Marco, EJ, Gerdes, MR, Schachtner, JN, Colville, AB, Gugel, M, Gazzaley, A. *Attention Span Decrements in Populations with Attention Impairments* (2020). Neuroscape Virtual Conference.

Thompson, CJ, Larkin, B, Volponi, JJ, **Simon, AJ**, Anguera, JA, Gazzaley, A. *Maximal Oxygen Uptake Responders Versus Nonresponders Show Differing Cognitive Responses to Movement-based Video Game Training* (2019). American College of Sports Medicine annual meeting. Orlando, FL.

Simon, AJ, Ziegler, DA, Mishra, J, Anguera, JA, Gazzaley, A. *Using multivariate EEG to predict a clinical measure of attention* (2019). Cognitive Neuroscience Society annual meeting. San Francisco, CA.

Volponi, JJ, **Simon, AJ**, Colville, AB, Javed, SV, Larkin, BJ, Samplay, KK, Park, SM, Schachtner, JN, Anguera, R, Thompson, CJ, Anguera, JA, Gazzaley, A. *Neural and behavioral transfer of a*

simultaneous cognitive-physical video game intervention in an older adult population (2019). Cognitive Neuroscience Society annual meeting. San Francisco, CA.

Dacorro, L, Leggit, A, **Simon, AJ**, Rauen, K, Wais, P, Geisler, M. *Event related potentials of negative-valenced visual distractors on visual working memory* (2019). Cognitive Neuroscience Society annual meeting. San Francisco, CA.

Gerdes, MR, Jurigova, BG, **Simon, AJ**, Sandling, J, Anguera, JA, Marco, EJ. *Efficacy of Synergized Cognitive-Physical Training for Children with Inattention* (2019). International Society for Autism Research Annual Meeting. Montreal, Canada.

Ziegler, DA, **Simon, AJ**, Rolle, C, Skinner, S, Gallen, CL, Gazzaley, A. *Closed-loop, digital, meditation training program improves sustained attention* (2018). Society for Neuroscience. San Diego, CA. Online.

Volponi, JJ, **Simon, AJ**, Colville, A, Javed, S, Larkin, B, Samplay, K, Park, S, Schachtner, JN, Anguera, R, Thompson, CJ, Anguera, JA, Gazzaley, A. *The effects of a novel simultaneous cognitive-physical training video game on an older adult population* (2018). Bay Area Memory Meeting. Davis, CA.

Simon, AJ, Campusano, R, Volponi, JJ, Skinner, SN, Anguera, JA, Gazzaley, A, Ziegler, DA. *Common and Unique Markers of Sustained Attention and Impulse Control* (2018). Cognitive Neuroscience Society annual meeting. Boston, MA.

Ziegler, DA, Skinner, SN, **Simon, AJ**, Gazzaley, A. *Meditation-Inspired Cognitive Training Improves Working Memory and Increases Cortical Thickness* (2017). The annual meeting of the Organization for Human Brain Mapping. Vancouver, Canada.

Thompson, CJ, Khan, C, Whitton-Martinez, L, Volponi, JJ, Souza, J, **Simon, AJ**, Skinner, SN, Kingsbook, D, Leggitt, A, Anguera, JA, Gazzaley, A. *Physiological And Cognitive Adaptations To 8 Weeks Of Training On A Movement-based Video Game* (2016). American College of Sports Medicine annual meeting. Boston, MA.

Skinner, SN, **Simon, AJ**, Ziegler, DA, Gazzaley, A. *Internal Attention Training Improves Sustained Attention and Distractor Suppression in Young Adults* (2016). Society for Neuroscience annual meeting. San Diego, CA.

Simon, AJ, Ziegler, DA, Janowich, JR, Gazzaley, A. *Baseline sympathetic activity predicts performance on a novel attention task in the presence of auditory distractions* (2015). Bay Area Memory Meeting. Davis, CA.

Volponi, JJ, Rolle, C, **Simon, AJ**, Kingsbook, D, Anguera, R, Thompson, C, Khan, C, Anguera, JA, Gazzaley, A. *Examining the benefit of a novel simultaneous cognitive-physical training video game* (2015). Bay Area Memory Meeting. Davis, CA.

PEER-REVIEWED PUBLICATIONS

Simon, AJ, Gallen, CL, Anguera, JA, Ziegler, DA, Mishra, J, Marco, E, Gazzaley, A. *Quantifying attention span across the lifespan*. Front. Cognit. 2023;2:1207428. doi: 10.3389/fcogn.2023.1207428

Anguera, JA, Rowe, MA, Volponi, JJ, Elkurdi, M, Jurigova, B, **Simon, AJ**, Singla-Anguera, R, Gallen, CL, Gazzaley, A, Marco, E. *Enhancing attention in children using an integrated cognitive-physical videogame: A pilot study*. Npj Digit. Med. 2023;6, 65. doi.org/10.1038/s41746-023-00812-z

Falgàs, N, Walsh, CM, Yack, L, **Simon, AJ**, Kramer JH, Rosen, H, Joie, R, Rabinovici, G, Miller, B, Spina, S, Seeley, WW, Ranasinghe, K, Vossel, K, Neylan, TC, Grinberg, LT. *Alzheimer's Disease phenotypes show different sleep architecture*. Alzheimers Dement. 2023; 1-11. doi: 10.1002/alz.12963

Anguera, JA, Volponi, JJ, **Simon, AJ**, Gallen, CL, Rolle, C, Singla-Anguera, R, Thompson, C, Ziegler, DA, Pitsch, E, Gazzaley, A. *Integrated cognitive and physical fitness training enhances attention abilities in older adults*. Npj Aging. 2022;8, 12. doi:10.1038/s41514-022-00093-y

Gallen, CL, Gerdes, M, Copeland, B, **Simon, AJ**, Cañadas, E, Marco, E, Anguera, JA. *Enhancing neural markers of attention in children with ADHD using a digital therapeutic*. PLOS ONE. 2021;16(12):1-14. doi:10.1371/journal.pone.0261981

Anguera JA, Schachtner JN, **Simon AJ**, et al. *Long-term maintenance of multitasking abilities following video game training in older adults*. Neurobiol Aging. 2021;103:22-30. doi:10.1016/j.neurobiolaging.2021.02.023

Bréchet L, Ziegler DA, **Simon AJ**, Brunet D, Gazzaley A, Michel CM. *Reconfiguration of Electroencephalography Microstate Networks after Breath-Focused, Digital Meditation Training*. Brain Connect. 2021;11(2):146-155. doi:10.1089/brain.2020.0848

Simon AJ, Schachtner JN, Gallen CL. *Disentangling expectation from selective attention during perceptual decision making*. J Neurophysiol. 2019;121(6):1977-1980. doi:10.1152/jn.00639.2018

Ziegler DA, **Simon AJ**, Gallen CL, et al. *Closed-loop digital meditation improves sustained attention in young adults*. Nat Hum Behav. 2019;3(7):746-757. doi:10.1038/s41562-019-0611-9

Simon AJ, Skinner SN, Ziegler DA. *Training Working Memory: Anatomy Matters*. J Neurosci. 2016;36(30):7805-7806. doi:10.1523/jneurosci.1513-16.2016

MANUSCRIPTS IN REVIEW

Simon, AJ, Gazzaley, A, Ziegler, DA. Digital meditation for improving focus.

MANUSCRIPTS IN PREPARATION

Ziegler, DA, **Simon, AJ**, Gallen, CL, Gugel, M, Colville, AB, Verma, A, Epel, ES, Volponi, JJ,

Kornfield, J, Anguera, JA, Gazzaley, A. Personalized digital meditation improves cognition, reduces stress, and reverses cellular aging in older adults.

Gallen, CL, **Simon, AJ**, Volponi, JJ, Anguera, JA, Ziegler, DA, Mishra, J, Gazzaley, A. Predicting cognitive intervention responses with resting state alpha power.

Walsh, CM, **Simon, AJ**, Ruoff, L, Varbel, J, Heuer, HW, Boxer, AL, Grinberg, LT, Kramer, JH, Miller, BL, Neylan, TC. Reductions in lower frequencies of overnight EEG power spectrum in progressive supranuclear palsy.