Anthony W. Sali

Department of Psychology
Wake Forest University
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EDUCATION

2010 - 2015	The Johns Hopkins University Ph.D., Psychological and Brain Sciences Advisors: Steven Yantis (deceased 2014), Susan Courtney
2010 - 2012	The Johns Hopkins University M.A., Psychological and Brain Sciences Advisor: Steven Yantis
2006 - 2010	Hamilton College Honors B.A., Psychology Summa Cum Laude, Phi Beta Kappa

HONORS AND AWARDS

2022	John R. Jombock Faculty-Student Engagement Award, Wake Forest University
2019 – 2021	Creative and Research Activities Development and Enrichment Initiative Fellow, Wake Forest University
2017 - 2018	Preparing Future Faculty Fellow, Duke University
2011 - 2014	National Science Foundation Graduate Research Fellowship
2010 - 2011	Eliju Root Research Fellowship
2010	B.F. Skinner Prize for Psychological Research
2010	Psychology Thesis of Distinction, Hamilton College
2010	Sigma Xi, Hamilton College
2009	Phi Beta Kappa, Epsilon Chapter, Hamilton College
2008	Psi Chi, Hamilton College

RESEARCH INTERESTS

Attention, Cognitive Control, ADHD
Cognitive Neuroscience, Statistical Learning, Functional Neuroimaging, Electroencephalography

ACADEMIC POSITIONS

Wake Forest University

2018 -	Assistant Professor Department of Psychology

Duke University
2015 -2018   Postdoctoral Associate
                        Center for Cognitive Neuroscience
                        Advisor: Tobias Egner

The Johns Hopkins University
2015 -   Adjunct Assistant Research Scientist

2010 - 2015   Graduate Research Fellow
                        Department of Psychological and Brain Sciences
                        Advisors: Steven Yantis, Susan Courtney

State University of New York at Buffalo
2009   Summer Research Intern, Child and Family Asthma Studies Center,
                        Department of Psychiatry and Pediatrics
                        Advisor: Beatrice Wood

Hamilton College
2009 - 2010   Undergraduate Research Assistant, Motor Control Lab
                        Advisor: Jonathan Vaughan
2008 - 2009   Undergraduate Research Assistant, ADHD and College Adjustment
                        Lab
                        Advisor: Tara McKee
2007 - 2009   Undergraduate Research Assistant
                        Advisors: Penny Yee, Gregory Pierce

TEACHING

Wake Forest University
Spring 2023   Instructor: First Year Seminar on Minds and Machines, Perception
Fall 2023   Instructor: Human Cognition (graduate level seminar), Perception
Fall 2022   Instructor: Human Cognition (graduate level seminar), Perception
Fall 2021   Instructor: First Year Seminar on Minds and Machines, Perception
Spring 2021   Instructor: Cognitive Psychology, Perception
Fall 2020   Instructor: First Year Seminar on Minds and Machines, Perception
Spring 2020   Instructor: Programming in MATLAB and the Psychophysics
                        Toolbox, Neuroscientific Study of Cognitive Control, Perception
Fall 2019   Instructor: Cognitive Psychology, Perception
Spring 2019   Instructor: Perception
Fall 2018   Instructor: Cognitive Psychology

Duke University
Fall 2017   Principles of Cognitive Neuroscience I (graduate level seminar).
                        Gave 2 out of 21 lectures.
Summer 2017   Summer Session Instructor: Introduction to Cognitive Neuroscience
                        (independently designed and taught)

2016 - 2017   Supervisor for graduation with distinction undergraduate research thesis in neuroscience: Jordan Cohen, Duke University, *Neural Mechanisms of Learned Cognitive Flexibility: Maintaining and Updating Predictions of Task-Switching*

The Johns Hopkins University
Jan. 2014, 2015 Instructor: Altered Perceptions (independently designed and taught)
2013 - 2014   Supervisor for honors thesis project in neuroscience: Nicole Albstein, Johns Hopkins University, *Effects of Environment on Attentional Flexibility*
2013   Lecturer: Advanced Statistical Methods (graduate-level statistics course). Gave 3 out of 22 lectures.
2012   Co-instructor: Research Methods
2011 - 2012   Teaching Assistant: Functional Human Neuroanatomy, Neural Basis of Cognitive Control, Introduction to Social Psychology

Hamilton College
2008 - 2010   Teaching Assistant: Statistics and Research Methods in Psychology

OUTREACH AND SUMMER PROGRAMS

2022-2024   Program Leader for Wake Forest University Pre-College Programs Summer Institute in Neuroscience (in-person).

2021   Program Leader for Wake Forest University Pre-College Programs Summer Institute in Neuroscience (virtual).

CONFERENCE ORGANIZATION

2021-2022   Organizer for the North Carolina Cognition Conference. Awarded $2,250.00 through the *Provost's Fund for Academic Excellence* at Wake Forest University (rescheduled for spring 2023).

GRADUATE STUDENT ADVISING

Yuxin Xie – Wake Forest University Master's Program in Psychology.
Cat Seitz – Wake Forest University Master's Program in Psychology. Thesis title: *Exploring Distractor Suppression In Diverse Populations: A Comparative Analysis Of Children And Adults*. Psychometrician at Duke University.
Elayna Seago – Wake Forest University Master's Program in Psychology. Thesis title: *A Comparison of Learned Attentional Flexibility in Older Versus Younger Adults.* Ph.D. student in human development and family science at the Virginia Polytechnic Institute since Fall 2022.
Vanessa Gill – Wake Forest University Master's Program in Psychology. Thesis title: *Trait Anxiety and Trait Worry Are Not Associated With Visual Working Memory Updating Effectiveness.*

Julianne Key – Wake Forest University Master's Program in Psychology. Thesis title: *Cognitive Flexibility and Visual Search*. Ph.D. student in cognitive psychology at UNC Chapel Hill since Fall 2020.

UNDERGRADUATE HONORS PROJECT ADVISING

Kate Leffler – Project in progress
Isabel Flicker – Project in progress
Lynn Li – Project title: Statistical Learning, Attentional flexibility, and ADHD.
Nadia Bokhari – Project title: The effect of explicit proactive control on emotional distractor suppression.
Anna Toledo – Project title: The neural bases of simultaneous fluctuations in spontaneous and learned attentional flexibility

GRANTS AND AWARDS

2024-2025   Wake Forest University Translational Science Center ($10,000). "The effect of high intensity interval resistance training (HIIRT) on functional brain networks associated with cognitive and physical function in older adults" (Co-PI).

2022-2025   National Institutes of Health ($410,490). "Brain Mechanisms of Spontaneous and Learned Attentional Flexibility" (PI).

2022-2023   Wake Forest University Translational Science Center ($42,268). "High-Intensity Interval Resistance Training (HIIRT) and Cognitive Functioning" (Co-PI).

MANUSCRIPTS IN REVISION, UNDER REVIEW, AND IN PREPARATION (* denotes undergraduate author, ** denotes graduate author)

Sali, A. W. & Oor, E. (under review). Serial Processing of Stimulus Identity and Shift Readiness Prediction Updating in the Absence of Cue Stimulus Repetitions. *Psychonomic Bulletin & Review*

Sali, A. W., & Seitz, C. W. (in prep). Distractor location frequency better accounts for the instantiation of learned distractor suppression than do reinforcement learning prediction errors.

Shaver, M. P*, Toledo, A. B.*, Torain, A. L.* Flicker, I.* & **Sali, A. W.** (in prep). Characterizing the interaction of spontaneous fluctuations in sustained attention and learned adjustments in attentional flexibility

PUBLICATIONS (Google Scholar citation count: 379; h-index: 9)

Sali, A. W., Bejjani, C., & Egner, T. (2024). Learning cognitive flexibility. Neural substrates of adapting switch-readiness to time-varying demands. *Journal of Cognitive Neuroscience, 36*, 377-393.

Waugh, C. E. & **Sali, A. W.** (2023). Resilience as the ability to maintain wellbeing: An allostatic active inference model. *Journal of Intelligence, 11*, 158.

Sali, A. W., Ma, R.*, Albal, M. S.*, & Key, J.** (2022). The location independence of learned attentional flexibility. *Attention, Perception, and Psychophysics*. https://doi.org/10.3758/s13414-022-02469-4.

Sali, A. W., Jiang, J. & Egner, T. (2020). Neural mechanisms of strategic adaptation in attentional flexibility. *Journal of Cognitive Neuroscience, 32*, 989-1008.

Sali, A. W., & Egner, T. (2020). Declarative and procedural working memory updating processes are mutually facilitative. *Attention, Perception, and Psychophysics, 82*, 1858-1871.

Sali, A. W., Anderson, B. A., & Courtney, S. M. (2018). Information processing biases in the brain: Implications for decision-making and self-governance. *Neuroethics, 11*, 259-271.

Sali, A. W., Anderson, B. A., Yantis, S., Mostofsky, S. H., & Rosch, K. S. (2018). Reduced value-driven attentional capture among children with ADHD compared to typically-developing controls. *Journal of Abnormal Child Psychology*, *46*, 1187-1200.

Xu, K. Z., Anderson, B. A., Emeric, E., **Sali, A. W.**, Stuphorn, V., Yantis, S., & Courtney, S. M. (2017). Neural basis of cognitive control over movement inhibition: Human fMRI and primate electrophysiology evidence. *Neuron*, 96, 1447-1458.

Sali, A. W., Courtney, S. M., & Yantis, S. (2016). Spontaneous fluctuations in the flexible control of covert attention. *Journal of Neuroscience, 36*, 445-454.

Anderson, B. A., & **Sali, A. W.** (2015). The impact of reward on attention: Beyond motivation. In T. S. Braver (Ed.), *Motivation and Cognitive Control*. Routledge.

Sali, A. W., Anderson, B. A., & Yantis, S. (2015). Learned states of preparatory attentional control. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *41*, 1790-1805.

Sali, A. W., Anderson, B. A., & Yantis, S. (2014). The role of reward prediction in the control of attention. *Journal of Experimental Psychology: Human Perception and Performance, 40*, 1654-1664.

Sali, A. W., Anderson, B. A., & Yantis, S. (2013). Reinforcement learning modulates the stability of cognitive control settings for object selection. *Frontiers in Integrative Neuroscience,* doi: 10.3389/fnint.2013.00095#sthash.rhlF9wgs.dpuf

Vaughan, J., Barany, D. A., **Sali, A. W.,** Jax, S. A., & Rosenbaum, D. A. (2010). Extending Fitts' Law to three-dimensional obstacle-avoidance movements: Support for the posture-based motion planning model. *Experimental Brain Research, 207*, 133-138.

CONFERENCE PROCEEDINGS

Sali, A. W., Anderson, B. A., & Yantis, S. (2012). Reinforcement learning modulates preparatory states of cognitive flexibility. *Visual Cognition, 20*, 1039-1043.

INVITED TALKS

Sali, A. W. (2019). Anticipate and adapt: Learned mechanisms of attentional and cognitive flexibility. University of North Carolina at Greensboro, Greensboro, NC.

Sali, A. W. (2017). Anticipate and adapt: Learned mechanisms of attentional and cognitive flexibility. Wake Forest University, Winston-Salem, NC.

Sali, A. W. (2014). Spontaneous and learned states of preparatory attentional control. Duke University, Durham, NC.

Sali, A. W. (2014). Spontaneous and learned states of preparatory attentional control. Princeton University, Princeton, NJ.

Sali, A. W. (2012). Spontaneous and learned fluctuations in the control of spatial attention. Hamilton College, Clinton, NY.

Barany, D., **Sali, A. W,** & Vaughan, J. (2009). Fitting Fitts' Law. Moss Rehabilitation Center, Philadelphia, PA.

PRESENTATIONS (* denotes undergraduate presenter, ** denotes graduate presenter, *** denotes teacher-scholar postdoctoral fellow)

Sali, A. W., Toledo, A. B.*, Xie, Y.** Shaver, M. P.* Torain, A. L.,* Flicker, I.,* & Oor E. E. (2024). Characterizing the interaction of spontaneous fluctuations in sustained attention and learned adjustments in attentional flexibility. Paper presented at the European Conference on Visual Perception, Aberdeen, Scotland, UK.

Oor, E. E., & **Sali, A. W.** (2024). Sensory event-related potentials in oculomotor capture. Poster presented at the meeting of the North Carolina Cognition Group, Greensboro, NC.

Sali, A. W., Toledo, A. B.*, Shaver, M. P.*, & Torain, A. L.* (2024). Pupillometry and neural signatures of spontaneous and learned attentional control states. Paper presented at the meeting of the North Carolina Cognition Group, Greensboro, NC.

Sali, A. W. (2024). Neuroscientific perspectives on generative AI. Panel discussion on ethics and AI titled "Machine learning: What does it change and why does it matter?" at Wake Forest University, Winston-Salem, NC.

Torain, A. L.*, **& Sali, A. W.** (2023). Learned attentional flexibility and spontaneous fluctuations in sustained attention modulate pupil size. Poster presented at the Object Perception, Attention, and Memory meeting, San Francisco, CA.

Sali, A. W. & Oor E. E. (2023). Dissociating shift readiness and stimulus identity prediction errors in an attentional orienting paradigm. Poster presented at the meeting of the Psychonomic Society, San Francisco, CA.

Sali A. W. (2023). Programming for neuroscientists: Preparing students for the lab and beyond. Paper presented at the Neuroscience Teaching Conference, Winston-Salem, NC.

Oor, E. E. & **Sali, A. W.** (2023). Tracking exogenous attentional capture in an urgent covert perceptual choice task. Poster presented at the meeting of the Vision Sciences Society, Saint Pete Beach, FL.

Torain, A. L.*, **& Sali, A. W.** (2023). Learned attentional flexibility and spontaneous fluctuations in sustained attention modulate pupil size. Poster to-be-presented at the Object Perception, Attention, and Memory meeting, San Francisco, CA.

Sali, A. W. & Oor E. E.*** (2023). Dissociating shift readiness and stimulus identity prediction errors in an attentional orienting paradigm. Poster to-be-presented at the meeting of the Psychonomic Society, San Francisco, CA.

Oor, E. E.*** & **Sali, A. W.** (2023). Tracking exogenous attentional capture in an urgent covert perceptual choice task. Poster presented at the meeting of the Vision Sciences Society, Saint Pete Beach, FL.

Shaver, M. P*, Toledo, A. B.*, & **Sali, A. W.** (2023). Investigating the interaction of fluctuations in spatial attentional flexibility and sustained attention. Poster presented at the meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Sali, A. W., Shaver, M. P.*, & Toledo, A. B.* (2023). Spontaneous and learned fluctuations in attentional control. Paper presented at the meeting of the North Carolina Cognition Group, Winston-Salem, NC.

Shaver, M. P.*, Toledo, A. B.*, & **Sali, A. W.** (2023). Individual differences in trait anxiety and fluctuations in attentional control. Poster presented at the meeting of the North Carolina Cognition Group, Winston-Salem, NC.

Seitz, C. W.** & **Sali, A. W.** (2023). Attentional suppression of a high-probability distractor location. Poster presented at the meeting of the North Carolina Cognition Group, Winston-Salem, NC.

Seitz, C. W.**, Seago, E. R.**, & **Sali, A. W.** (2022). Age-related differences in learned attentional flexibility. Poster presented at the meeting of the Psychonomic Society, Boston, MA.

Seago, E. R.**, & **Sali, A. W.** (2022). Learned attentional flexibility in older adults. Poster presented at the Cognitive Aging Conference, Atlanta, GA.

Bokhari, N.,* & **Sali, A. W.** (2021). Measuring proactive control over emotion-induced blindness while manipulating distractor location uncertainty. Poster presented at the meeting of the Psychonomic Society, Virtual Presentation.

Sali, A. W., & Key, J.** (2021). Measuring attentional capture across learned states of cognitive flexibility. Poster presented at the meeting of the Vision Sciences Society, Virtual Presentation.

Albal, M.,* Ma, R.,* Key, J.,** & **Sali, A. W.** (2020). Examining the location-specificity of attentional flexibility. Poster presented at the meeting of the Psychonomic Society, Virtual Presentation.

Gill, V. L.,** & **Sali, A. W.** (2020). Tracking color working memory precision according to learned cognitive flexibility. Poster presented at the meeting of Object, Perception, Attention, and Memory, Virtual Presentation.

Key, J.,** & **Sali, A. W.** (2019). Examining the domain generality of cognitive flexibility. Poster presented at the meeting of the Psychonomic Society, Montreal, QC.

Gao, A.,** Stone, E., **Sali, A. W.,** & Okan, Y. (2019). How people interpret numerical and graphical displays of risk: Evidence from eye-tracking. Poster presented at the meeting of the Society for Judgment and Decision Making, Montreal, QC.

Bejjani, C., Whitehead, P. S., **Sali, A. W.,** Chiu, Y-C., & Egner, T. (2019). Assessing causal contributions of parietal cortex to learned cognitive flexibility. Poster presented at the meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Sali, A. W., & Egner, T. (2018). Neural mechanisms of strategic adaptation in attentional flexibility. Poster presented at the meeting of the Psychonomic Society, New Orleans, LA.

Sali, A. W., Bejjani, C., & Egner, T. (2018). Learning cognitive flexibility. Neural mechanisms of adaptive switch readiness. Poster presented at the meeting of the Cognitive Neuroscience Society, Boston, MA.

Sali, A. W., Bejjani, C. & Egner, T. (2017). Neural mechanisms of learned switch-readiness. Poster presented at the meeting of the Psychonomic Society, Vancouver, BC.

Cohen, J.,* Egner, T., & **Sali, A. W.** (2017). Neural mechanisms of learned cognitive flexibility: Maintaining and updating predictions of task-switching. Poster presented at the Undergraduate Neuroscience Graduation with Distinction Poster Session, Duke University, Durham, NC.

Sali, A. W., & Egner, T. (2017). Reconstructing changes in the spatial deployment of attention according to environmental statistical structure. Poster presented at the meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Sali, A. W., & Egner, T. (2016). Characterizing the relationship between item updating and set shifting processes in working memory. Paper presented at the meeting of Object Perception Memory and Attention, Boston, MA.

Connor, C. E., Tokozoglu, H. N., **Sali, A. W.**, Anderson, B. A., & Yantis, S. (2016). Representation of medial axis configurations in lateral occipital complex. Paper presented at the meeting of the Society for Neuroscience, San Diego, CA.

Sali, A. W., & Courtney, S. M. (2015). Neural basis of learned adjustments in attentional flexibility according to environmental statistical structure. Paper presented at the meeting of the Society for Neuroscience, Chicago, IL.

Xu, K. Z., **Sali, A. W.,** Anderson, B. A., Yantis, S., & Courtney, S. M. (2015). fMRI activation of dorsal and ventral right ventrolateral prefrontal cortex in a context-dependent stop signal task indicates different roles in motor control. Poster presented at the meeting of the Society for Neuroscience, Chicago, IL.

Sali, A. W., & Courtney, S. M. (2015). Attentional orienting expectations broaden and constrain the window of spatial selection. Poster presented at the meeting of the Vision Sciences Society, St. Petersburg, FL.

Tokgozoglu, H. N., **Sali, A. W.,** Anderson, B. A., Yantis, S., & Connor, C. E. (2015). Structural, not spectral, representation of shape in lateral occipital complex. Poster presented at the meeting of the Vision Sciences Society, St. Petersburg, FL.

Sali, A. W., Courtney, S. M., & Yantis, S. (2014). Temporal expectations modulates the flexibility of object-based attentional selection. Poster presented at the meeting of the Psychonomic Society, Long Beach, CA.

Sali, A. W., Anderson, B. A., & Yantis, S. (2014). The role of statistical learning in the flexible control of attention. Poster presented at the meeting of the Vision Sciences Society, St. Petersburg, FL.

Sali, A. W., Anderson, B. A., & Yantis, S. (2013). Statistical regularities modulate the flexibility of attentional control. Poster presented at the meeting of the Psychonomic Society, Toronto, ON.

Sali, A. W., Anderson, B. A., & Yantis, S. (2013). The role of predictable and unpredictable reward in the control of attention. Poster presented at the meeting of the Vision Sciences Society, Naples, FL.

Sali, A. W., Anderson, B. A., & Yantis, S. (2012). Reinforcement learning modulates preparatory states of cognitive flexibility. Paper presented at the meeting of Object Perception Memory and Attention, Minneapolis, MN.

Sali, A. W., & Yantis, S. (2012). Decoding fluctuations in attentional flexibility using multivoxel pattern classification. Poster presented at the meeting of the Society for Neuroscience, New Orleans, LA.

Sali, A. W., & Yantis, S. (2012). Neural correlates of spontaneous fluctuations in attentional control. Poster presented at the meeting of the Cognitive Neuroscience Society, Chicago, IL.

Vaughan, J., Barany, D., **Sali, A.,** Jax, S., & Rosenbaum, D. (2009). Movement Time When Circumventing Obstacles in a 3-D Workspace. Poster presented at the meeting of the Psychonomic Society, Boston, MA.

AD-HOC REVIEWING

Journal of Neuroscience
Journal of Cognitive Neuroscience
Attention, Perception, and Psychophysics (Special Issue Guest Editor)
Psychonomic Bulletin and Review
Visual Cognition
Cognition
Journal of Experimental Psychology: General
Quarterly Journal of Experimental Psychology
PLOS One
BMC Pediatrics
Journal of Intelligence
Journal of Experimental Psychopathology
Cerebral Cortex
Collabra: Psychology

GRANT REVIEWING

June 2024 served on NIH study section: Human Complex Mental Function

UNIVERSITY AND ACADEMIC SERVICE

2024 -	
2024 -	Neuroscience and Society Strategic Working Group, Wake Forest University
2023 - 2024	Curriculum Review Committee, Wake Forest University
2023 - 2024	Long Range Planning Committee, Wake Forest University
2021 -	Honor and Ethics Council, Wake Forest University
2020, 2022, 2024	Faculty Search Committee, Department of Psychology, Wake Forest University.
2019 – 2021, 2022-2024	Lower Division Advising, Department of Psychology, Wake Forest University.
2019 -	Department Website and Social Media Committee, Department of Psychology, Wake Forest University. *Chair 2023 -*
2018 -	Inclusion, Diversity, Equity, and Accessibility Committee, Department of Psychology, Wake Forest University.
2018 - 2023	Policies and Procedures Committee, Department of Psychology, Wake Forest University.
2010 - 2015	Mentor for undergraduate research assistants, Yantis Lab, Johns Hopkins University.
2012 - 2015	Graduate Student Teaching Assistant Selection Committee
2011 - 2015	Brain Awareness Week Outreach Program Baltimore Polytechnic Institute, Baltimore, MD.

PROFESSIONAL AFFILIATIONS

Psychonomic Society
Vision Sciences Society
Cognitive Neuroscience Society

TECHNICAL COMPETENCIES

MATLAB, Bash, Python, R, SPSS, FSL, AFNI, PYMVPA, Sun Grid Engine