Nicholas M. Singletary, Ph.D.

linkedin.com/in/nicholas-singletary-81888975

EXECUTIVE SUMMARY

Goal-driven, resilient neuroscience researcher with an analytical mindset. Insightful analyst with over 6 years of experience in human fMRI experimental design and data analysis and over a decade of experience in programming, statistics, and neuroscience research more generally. Effective communicator with excellent verbal and written communication skills, demonstrated by extensive experience training personnel, presenting at academic conferences, and writing peer-reviewed scientific journal articles. Proven track record of bringing research projects to fruition.

SKILLS

- Design and administration of behavioral and MRI experiments for human subjects
- fMRI data analysis, including multivariate decoding
- MATLAB, SPM, and Psychtoolbox
- Operation of MRI console
- Command-line use of Unix-based operating systems (macOS and Linux)
- Microsoft Office, Adobe

RELEVANT EXPERIENCE

Postdoctoral Researcher, Research Foundation for Mental Hygiene (New York, NY) July 2023–Present

- Analyzed experimental behavioral and fMRI data from human subjects using various statistical modeling techniques, including multivariate decoding, resulting in the co-authorship of 1 peer-reviewed journal article and 1 preprint to be published as a journal article.
- Explained complex statistical, behavioral, and cognitive analyses to various audiences, culminating in a research talk at the 2023 Society for Neuroscience (SfN) Meeting.
- Mentored postbaccalaureate technicians and interns on statistical methods and conference presentation skills, contributing to their acceptance for interviews at Ph.D. and M.D. programs.

Cognitive Neuroscientist (Ph.D. Candidate), Columbia University (New York, NY) 2016–2023

- Designed and executed a research study and IRB protocol to investigate the neural bases of decision-making, probabilistic inference, and information sampling behavior in human subjects, using behavioral analysis, functional magnetic resonance imaging (fMRI), statistical modeling, and multivariate decoding in MATLAB, SPM, Psychtoolbox, and Linux-based software. Resulted in the co-authorship of 2 peer-reviewed publications and 2 preprints to be published.
- Awarded over $100,000 in grants, including the National Science Foundation (NSF) Graduate Research Fellowship, to defray training and research costs from my Ph.D. advisors and to present our findings at international conferences.
- Organized a seminar at the 2019 SfN Meeting, providing a forum for lectures and collaboration between hundreds of researchers across career levels and subdisciplines.
- Mentored other trainees, including undergraduate, postbaccalaureate, graduate, and postdoctoral researchers, on fMRI standard operating procedures, operation of the MRI console, neuroanatomy, and statistical analysis of behavioral and fMRI data, contributing to their acceptance into Ph.D. and M.D. programs.

HHMI EXROP Summer and Capstone Fellow, Columbia University (New York, NY) 2015, 2016

Developed, programmed, and implemented a behavioral task to research recognition memory as a decision-making process using MATLAB and Psychoolbox, as part of the Howard Hughes Medical

Institute (HMMI) Exceptional Research Opportunities Program (EXROP), resulting in a conference presentation and contributing to establishing a new line of research in the lab.

Undergraduate Research Assistant, Emory National Primate Research Center (Atlanta, GA) 2013–2016
Co-invented a new method to create digital 3-D reconstructions of histologically stained sections of brain tissue and studied the structural connectivity of cortical networks using Linux-based software, resulting in an SfN poster presentation and defense of an undergraduate thesis awarded Highest Honors.

NSF CELEST Summer Fellow, Northeastern University (Boston, MA) 2014
Developed, programmed, and implemented a visual experiment to study the influence of illusory afterimages on perceived color using MATLAB and Psychtoolbox, as part of the NSF Center of Excellence for Learning in Education, Science, and Technology (CELEST).

SELECTED TEACHING EXPERIENCE

Teaching Assistant, Columbia University (New York, NY) Spring 2018
Organized and taught recitations for a course required for Neuroscience undergraduates, teaching fundamental skills for reading, comprehending, and presenting complex research articles; collaborated with other TAs to grade exams and advise the lecturing professor on materials to reach curriculum goals.

SELECTED PUBLICATIONS

- **Singletary NM**, Gottlieb J, Horga G. In press. "The parieto-occipital cortex is a candidate neural substrate for the human ability to approximate Bayesian inference." *Communications Biology*.
- **Singletary NM**, Horga G, Gottlieb J. 2023. "A Distinct Neural Code Supports Prospection of Future Probabilities During Instrumental Information-Seeking. *bioRxiv*.
- Ashinoff BK, **Singletary NM**, Baker SC, Horga G. 2022. "Rethinking delusions: A selective review of delusion research through a computational lens." *Schizophrenia Research* 245:23–41.
- Gottlieb J, Cohanpour M, Li Y, **Singletary N**, Zabeh E. 2020. "Curiosity, information demand and attentional priority." *Current Opinion in Behavioral Sciences* 35:83–91.

SELECTED TALKS

Invited Talk
"How I landed in the parietal cortex," Emory University, Atlanta, GA, 2021.

Conference Talks

- **Singletary NM**, Horga G, Gottlieb J. A distinct neural code supports prospection of future probabilities during instrumental information-seeking. Society for Neuroscience Meeting, Washington, DC, 2023.
- **Singletary NM**, Gottlieb JP, Horga G. Deciding to sample: Modeling instrumental information demand and belief updating in humans. Society for Neuroscience Meeting, Chicago, IL, 2019.

EDUCATION

Ph.D. in Neurobiology and Behavior, Columbia University 2023
B.S. in Neuroscience and Behavioral Biology with Highest Honors, Emory University 2016

- D. Abbott Turner Scholarship, 2014–2016
- Norman C. and Henry J. Miller Dean's Achievement Scholarship, 2014–2016
- Phi Beta Kappa, 2015