Joshua Satya Cetron, Ph.D. | *Resume*

jcetron@iq.harvard.edu | 1737 Cambridge St, Room K333, Cambridge, MA 02138

Data scientist, quantitative social scientist, and research methodologist with a background in psychology, neuroscience, and multivariate statistics.

Professional Experience

Data Science Specialist, Institute for Quantitative Social Science
Harvard University, Cambridge, MA, *June 2023 - Present*
- Consult and advise on the development and implementation of research methods and statistical analyses - Collaboratively support Harvard and MIT faculty, staff, and students across the sciences - Special expertise: experimental methods, exploratory data analysis, generalized and multilevel regression modeling of empirical data, programming and data visualization in R

Doctoral Student and Researcher, Harvard Intergroup Neuroscience Lab
Harvard University, Cambridge, MA, September 2018 - May 2023
- Advisors: Mina Cikara, Ph.D., Joshua Greene, Ph.D.
- Research themes: impact of intergroup biases on evidence-based learning, representational confusability of facts and opinions. - Developed and implemented a research program investigating the psychological and neural representations of social and political information, using methods from neuroscience, psychology, philosophy, and statistics. - Directed and conducted all aspects of the research program, including experiment design, data collection, statistical analysis of survey and neuroimaging data, data visualization and presentation, and manuscript preparation for written dissertation. - Developed specialized multivariate statistical methods in collaboration with statistician Patrick Mair
- Received multiple honors and awards as a doctoral student, including the Harvard Graduate School of Arts and Sciences Presidential Scholarship, the highly selective National Science Foundation Graduate Research Fellowship grant, and multiple teaching awards.

Teaching Fellow, Graduate-level Statistics
Harvard University, Cambridge, MA, 2020 - 2024
- Lead instructor: Prof. Patrick Mair
- Courses: Intermediate Statistical Analysis in Psychology, Multivariate Analysis in Psychology, Advanced Statistical Modeling. Intermediate and advanced graduate statistics courses for Harvard doctoral students in psychology and the social sciences. - Designed laboratory materials (lectures, practical demonstrations) and problem sets, taught 1-2 weekly 90-minute sections, provided individualized written feedback on assignments.
- Material covered: introduction to R statistical software; regression modeling at all levels of complexity (including LMMs and GLM(M)s, GAMs, path regression models, robust and resistant regression, and mixture regression) across both frequentist and Bayesian modeling frameworks; cluster analysis; hidden markov models; longitudinal and time series models; regularization (LASSO, Ridge), model-based recursive partitioning; causal inference. - Awarded the Derek Bok Center Certificate of Distinction in Teaching for each of my 3 semesters of teaching as a doctoral student. - Continued teaching advanced course after receiving my doctorate at the special request of the lead instructor.

Research Advisor to Undergraduate Student Researchers
Harvard University, Cambridge, MA, 2019 - 2022
- Collaborated with, supervised, and mentored two award-winning undergraduate researchers over four years: Onyul Haque, an NSF Leadership Alliance grant awardee, and Jacob Blair, a Harvard honors thesis student in neuroscience and philosophy. - As honors thesis advisor: oversaw the development and implementation of a multi-method research project that formulated student's honors thesis on the psychological representations of opinion and factual statements. My mentee's thesis was awarded the 2022 Thomas Temple Hoopes Prize and the inaugural Robert J. Glushko Undergraduate Thesis Prize in Cognitive Science.
- As NSF Leadership Alliance advisor: oversaw the development, administration, analysis, and presentation of a new research project on intergroup attitude importance which my student presented at multiple national conferences.

Director, Dartmouth Outing Club (DOC) First-Year Trips Program
Hanover, NH, November 2015 - November 2016
- Directed the 2016 DOC First-Year Trips program, the largest College outdoor orientation program in the country. - Designed and oversaw 139 five-day, student-led trips across New Hampshire for ~1000 incoming students. - Interviewed and hired a 20-person Directorate including 1 Assistant Director and 19 team leaders - Selected and managed a student volunteer staff of 350+ (278 trip leaders + 56 support crew members on 6 teams) from an applicant pool of 600+.

Researcher and Lab Manager, Cognitive Neuroscience of Learning Lab
Dartmouth College, Hanover, NH, *June 2013 - September 2018*
- Advisor: David J. M. Kraemer, Ph.D.
- Designed and implemented neuroimaging, behavioral, and classroom-based research methods to explore the multivariate neural representations associated with concept learning in STEM domains. - Developed novel analytical methods to characterize the ways in which the brain supports knowledge representations - Began work as an undergraduate researcher, including as a neuroscience honors thesis student, and continued as a full-time researcher and lab manager for two years prior to pursuing my PhD - Authored or co-authored 6 academic publications, 5 of which were published within a 2-year period - Received multiple research grants and awards, including Dartmouth's Presidential Scholarship and the High Honors Award for my honors thesis.

Laboratory Intern and Research Assistant, Emory University Transplant Centers
Emory University, Atlanta, GA, Summers 2010 - 2012
- Advisor: Leslie Kean, M.D./Ph.D.
- Research themes: immunology, graft-versus-host disease, bone marrow transplants (BMT) - Assisted with data collection, specimen storage and organization, and basic statistical analysis as a summer intern

Program Facilitator, Pearson Seminar on Youth Leadership
Lester B. Pearson United World College of the Pacific, Victoria, B.C., Canada, Summers 2010 - 2011
- Designed and implemented a month-long summer leadership program on social justice, global citizenship, environmental sustainability, and community-building for 100 high school students from 20+ countries, alongside 16 other facilitators and 8 program coordinators.

Education

Ph.D., M.A., Psychology, Harvard University, Cambridge, MA, May 2023 - Presidential Scholar, Harvard Graduate School of Arts and Sciences - National Science Foundation Graduate Research Fellowship Award (NSF GRFP) - Certificates of Distinction in Teaching for courses in advanced statistics, awarded for every course taught - Kavli Summer Institute in Cognitive Neuroscience (SICN) Summer Fellowship, University of California, Santa Barbara

B.A., Neuroscience, **Summa Cum Laude*, Dartmouth College***, Hanover, NH, June 2016 - Phi Beta Kappa, GPA: 3.92 - High Honors Award, Neuroscience Honors Thesis - James O. Freeman Presidential Scholar - Kaminsky Family Fund Award Grant Researcher - 2x Rufus Choate Scholar (top 5% of class within an academic year) - 4x Recipient of Citations for Meritorious Performance in academic courses - Minors in Education and Spanish

Skills

Computational Skills
- *Programming Languages:* Advanced R and Python for statistical modeling and data visualization, Unix shell scripting, Markdown and RMarkdown, Slurm for HPCC (high-performance cluster computing).
- *Computational Tools & Software:* RStudio/Posit, Visual Studio Code, Jupyter notebooks/iPython, Git & Github, Qualtrics, PsychoPy.

Statistical Skills
- Regression modeling (frequentist and Bayesian implementations), incl. linear and generalized linear fixed-effects, mixed-effects, and additive modeling - Multivariate cluster analysis, incl. hierarchical clustering

(standard and bootstrapped), density-based clustering - Multivariate dissimilarity analyses, incl. representational similarity analysis (RSA), multivariate pattern analysis (MVPA) - Dimensionality reduction methods, incl. multidimensional scaling (MDS), principal components analysis (PCA) - Machine learning and classification analyses, incl. support vector machine (SVM) classifiers

Neuroimaging Skills

- *Functional MRI Scanning:* Scanner operation and safety training (Philips 3.0 T Achieva Intera, Siemens PRISMA 3T).
- *Neuroimaging Analysis Tools:* AFNI, SUMA, FSL, FreeSurfer, fMRIPrep, nilearn, PyMVPA.
- *Neuroimaging Analysis Procedures:* General linear modeling (subject- and group-level), whole-brain searchlight analysis, MVPA, RSA.

Other Skills

- *Media Processing:* Audio editing, recording, and mixing (Logic Pro X), image editing (Photoshop, GIMP), video editing (DaVinci Resolve).
- *Engineering:* Electronics soldering, basic woodworking, amateur luthier.
- *Language Skills:* Fluent in Spanish.
- *Musical Training:* 25+ years of multi-instrumental training, songwriting, and performance experience.