Dr. Benjamin Rickles

Skilled Neuroscience and Cognitive Science PhD
with extensive programming and data analysis experience.

CONTACT

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EDUCATION

UNIVERSITY OF MARYLAND
PhD Neuroscience and Cognitive Science
Sept. 2017- May 2023

Classes: Computational Psycholinguistics, Brain Dynamics and EEG

Certificates: 2021 Introduction to I-Corps

UNIVERSITY OF OREGON
Master of Psychology
Sept. 2016-May 2017

Classes: Advanced Cognitive Psychology, Statistics, Ethics in Psychology

GEORGIA STATE UNIVERSITY
PhD Program, Cognitive Psychology
Sept. 2014-May 2016

Classes: History of Psychology, Brain Language and Education, Neurolinguistics Reading group, Functional Neuroanatomy

UNIVERSITY OF PITTSBURGH
Bachelor of the Arts
Sept. 2005-May 2009

Classes: Abnormal Psychology, Psycholinguistics, Psychology of Writing, Philosophy of Language

WORK EXPERIENCE

Evaluation Coordinator

ADVANCED EDUCATION RESEARCH AND DEVELOPMENT FUND　　　September 2023-Present

- Provided scientific evidence to support or refute various claims about literacy intervention
- Communicated research findings with teammates and non-scientists within the company
- Developed a remote version of an existing literacy intervention
- Adjusted existing literacy intervention to target older children
- Created IRB applications for human subjects research

Research Intern

ADOBE INC　　　June 2022-November 2023

- Developed tools to allow for Brain-Computer Interfacing (BCI) and neuropsychological testing in a VR environment
- Designed a dual eye-tracking and ERP study examining preference across various modes of stimulus presentation
- Integrated HTC-VIVE with WearableSensing EEG hardware and Unity to allow for co-registration of data streams in lab streaming layer (LSL)
- Developed algorithms for data acquisition, co-registration, preprocessing, and visualization of neurophysiological and eye-tracking data in Python (numpy, scipy, pandas, matplotlib)
- Applied Machine Learning techniques to EEG and ERP data to calibrate and explore data in Python (scikit-learn)
- Analyzed Fixation-Related ERP differences related to preference across various modes of stimulus presentation
- Created IRB applications for human subject experiments
- Recruited, enrolled, and recorded EEG data from >15 human research participants
- Collaborated with teammates in various time zones
- Communicated results to teammates and non-scientists within the company

Chief Technology Officer

REPURPOSE FARM PLASTIC LLC　　　January 2021-June 2023

- Created and established Repurpose Farm Plastic as an LLC
- Invented a novel method for cleaning contaminated plastic films commonly used in agriculture
- Completed University of Maryland's Innovation-Corps (I-Corps) level 1 training program
- Conducted numerous stakeholder interviews across the plastic recycling value chain including farmers, recycling industry leaders, government organizations (USDA), and mechanical and chemical engineers.
- Authored and won a grant for $18,000 from the University of Maryland Office of Sustainability

RESEARCH EXPERIENCE

Graduate Researcher

UNIVERSITY OF MARYLAND　　　August 2017-September 2024

- Designed neurophysiological experiments and stimuli to test neurocognitive models of narrative comprehension
- Peer-reviewed submissions for academic journals
- Applied computational models of semantics using vector space models (GloVe) in Python (numpy, gensim) to evaluate neural signals related to narrative comprehension
- Analyzed texts using natural language processing techniques in python (nlptk)
- Created computational models to explain behavior
- Recruited, enrolled, and recorded EEG data from >100 human research participants
- Integrated EEG recording and stimulus presentation via lab streaming layer (LSL)
- Developed pipelines for data acquisition, preprocessing, and storage of neurophysiological data in Matlab
- Developed online experiments for online research participants
- Communicated findings to non-scientific and scientific audiences through presentations and writing
- Trained undergraduate researchers in electroencephalography (EEG) recording, processing, and analysis

Graduate Student Researcher

APPLIED RESEARCH LAB FOR INTELLIGENCE AND SECURITY　　　May 2020-August 2020

- Administered experimental tasks involving transcutaneous electrical vagus nerve stimulation
- Collaborated with team via git to clean and analyze data in using advanced statistics in R
- Obtained clearance and training for handling data connected to the Department of Defense
- Tailored electrodes to fit participants

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RESEARCH EXPERIENCE

Graduate Student Researcher

UNIVERSITY OF OREGON   May 2020-August 2020

- Demonstrated understanding of designing and implementing protocols for ethical human research experiments
- Recruited enrolled, and recorded electroencephalography (EEG) data from 30 human research participants
- Communicated findings to a scientific audience

Graduate Student Researcher

GEORGIA STATE UNIVERSITY   August 2014-May 2016

- Trained undergraduate researchers in ERP recording, processing, and analysis.
- Designed an ERP experiment to examine neural indices of lexical processing and sentence comprehension
- Analyzed ERP/ERP and fMRI data looking at differences in memory retrieval between words that varied on lexical variables

Research Assistant

UNIVERSITY OF PITTSBURGH   November 2008-May 2014

- Designed experiment to test models of sentence processing
- Analyzed ERP and EEG data to assess the quality of first- and second-language vocabulary knowledge
- Helped to publish multiple articles on second language learning, lexical quality, and sentence processing
- Presented individual research posters international conferences

TEACHING EXPERIENCE

Instructor of Record

UNIVERSITY OF MARYLAND   January 2019-May 2020, January 2024

- Taught 300 level courses, Human Development Through the Lifespan, Research Methods in Human Development, and Your Brain on Education: The Neuroscience of Learning and Development
- Prepared course syllabi and taught both online and in-person
- Developed online coursework and tests
- Tailored explanations to fit students' understanding
- Monitored student progress and provided feedback
- Frequently lectured to groups of 30-60 students

Online Workshop Leader

UNIVERSITY OF MARYLAND LANGUAGE SCIENCE CENTER   January 2020

- Lead week-long introductory course for R-Studio for 10 graduate students
- Created content for an online course
- Monitored progress and answered questions

Team Leader

REPURPOSE FARM PLASTIC LLC   January 2022-May 2022

- Lead two teams of undergraduate engineering students as part of their capstone course requirement
- Taught basic carpentry, electrical, and metallurgy skills
- Oversaw budget and ordering of materials
- Ensured workplace safety
- Monitored student progress

Volunteer Reading Tutor

HOMELESS CHILDREN'S EDUCATION FUND   June 2009 -June 2014

- Established children's libraries in various shelters in Pittsburgh, PA
- Once per week, read with students from kindergarten and elementary school
- Assisted elementary and middle school students with homework
- Played games and spoke with children about their day
- Communicated with parents and shelter staff about child progress
- Raised money for shelter
- Promoted the non-profit
- Met with organization leaders