




Melissa Pax

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EDUCATION

Northeastern University

Fall 2022 - May 2025

Master of Science in Computer Science

Current GPA: 4.0/4.0

Relevant Coursework: Object-Oriented Design, Data Structures, Algorithms, Artificial Intelligence

Fundamentals, Machine Learning

Case Western Reserve University

Fall 2015 - Summer 2019

Bachelor of Arts in Psychology and Cognitive Science

GPA: 3.7/4.0

SKILLS

Languages: Python, Java, MATLAB, C, C++, R, HTML/CSS/Javascript, FreeSurfer

Tools: Git/GitHub, Unix Shell, VS Code, IntelliJ IDEA, Siemens MRI, BioSemi, BrainVision, home-based tDCS, EEG, TMS

PROJECTS AND PUBLICATIONS

Predicting brain age during development using convolutional neural network

August 2023 – Present

- Independently created and designed a protocol to develop a deep learning model that can identify the age of a child or adolescent using structural magnetic resonance imaging (MRI) brain scans
- Model is trained on over 1000 participants from the National Institutes of Health's Human Connectome Project Lifespan data set
- Completing as part of the Distributed Research Apprenticeship Program for Master's, where academically strong computer science graduate students are selected to be paired with a professor to complete a research project

Network hub centrality and working memory performance in schizophrenia

September 2022

- Utilized MATLAB and FreeSurfer to compute degree centrality between different regions of interest in functional magnetic resonance images of the human brain to identify cortical hubs underlying working memory performance in schizophrenia
- Assessed relationships between degree centrality and working memory accuracy and reaction time using a correlation analysis
- Listed as second author and co-authored with Hamdi Eryilmaz, Alexandra O'Neill, Mark Vangel, Ibai Diez, Daphne Holt, Joan Camprodon, Jorge Sepulcre, and Joshua Roffman. Published in *Schizophrenia*, volume 8, issue 76

EXPERIENCE

Khoury College of Computer Science | Teaching Assistant for Foundations of Computer Science

Present

Northeastern University, Boston, MA

- Holds office hours to aid students' understanding of class concepts, and individually tailors tutoring plans for one-on-one meetings
- Collaborates with a team of fellow teaching assistants to lead two recitations a week, each consisting of 30 graduate students, to guide them through an in-class Python project
- Grades weekly homework and provides detailed feedback for a cohort of over 200 students

Massachusetts General Hospital | Clinical Research Coordinator

August 2019 – July 2022

Martinos Center for Biomedical Imaging, Charlestown, MA

- Under Harvard University faculty in the Laboratory of Neuropsychiatry and Neuromodulation, gathered and analyzed magnetic resonance imaging data to investigate memory in schizophrenia
- Conducted pre-processing on structural and functional MRI brain images using FreeSurfer and MATLAB; ran analyses (e.g. general linear models, graph theory) on current and past data sets of schizophrenia patients, resulting in a publication
- Created a memory task in Python assessing a participant's spatial memory and collected preliminary data from this program that led to a grant becoming approved
- Managed participant recruitment, scheduled visits, and collected study data on a Siemens 3T MRI machine after receiving MRI certification