Patrick **Sadil**

Postdoctoral Research Fellow

Johns Hopkins Bloomberg School of Public Health; Biostatistics

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Education

PhD, Cognitive Psychology

University of Massachusetts, Amherst *2019–2020*

- Designed hierarchical Bayesian algorithm for analyzing high-dimensional medical imaging data (MRI)
- Implemented algorithm on High Performance Computing cluster
- Tested algorithm in newly collected neuroimaging dataset

MS, Cognitive Psychology

University of Massachusetts, Amherst *2015–2019*

- Formulated and implemented novel hierarchical Bayesian analysis of behavior
- Published analysis algorithm as journal article (Sadil, Cowell, and Huber 2019)
- Used algorithm to parse experiment (Sadil, Potter, Huber, and Cowell 2019)

BA, Biology

Reed College *2010–2014*

Experience

Postdoctoral Research Fellow - Biostatistics

Johns Hopkins Bloomberg School of Public Health *July 2021 - Present*

- Built quality control procedure for large neuroimaging dataset of chronic pain
- Arranged analysis pipeline at High Performance Computing center to automate data processing (python, bash, Docker).

Postdoctoral Research Associate - Cognitive Psychology

University of Massachusetts, Amherst *Sep 2020 - June 2021*

- Implemented user-friendly R package for inferring neuromodulation and bundle as BIDS Application
- Automated testing of package on multiple operating systems (Linux, macOS, Windows) with GitHub Actions
- Designed multi-day workshops on neuromodulation package, including background in Bayesian analyses

Research Assistant

University of Massachusetts, Amherst *Summer 2016 - Summer 2020*

- Organized tutorials and a weekly 'coding club' focused on software for graduate students
- Conducted research for and published two first-author papers under NSF and NIH funded projects

Teaching Assistant - Research Methods in Psychology

University of Massachusetts, Amherst *Spring 2016*

- Lectured to 20 psychology undergraduate students twice weekly, guiding students through three research projects
- Reviewed theory of introductory statistics, including lab-based practice
- Maintained office hours to review course content and exams one-on-one

Personal Projects

$50000 grant from Oracle - Probing Bias in Automated Diagnoses from Medical Imaging

- Ongoing project to study biases in predictions of health outcomes with the largest neuroimaging dataset ever collected
- Train machine and deep learning algorithms on one demographic, assess generalizability in others
- Running python scripts on Oracle Cloud Infrastructure

Machine Learning with Generative Adversarial Network

- Scrapped 25,000 images from Google Maps using Google APIs and python
- Preprocessed images in python for training TensorFlow neural network (stylegan2-ada)
- Trained network on Google Cloud Compute Engine

Online behavioral experiment

- Prepared for COVID-19 by porting behavioral experiment to Heroku using python web framework (Django), Angular, and postgreSQL