

Thomas Morin

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EDUCATION

B.S., Cognitive and Brain Science, Computer Science - May 2017

Tufts University, Medford, MA

GPA: 3.70/4.0, Dean's List (5/6 semesters)

ACADEMIC HONORS

Psi Chi Honor Society

- Achieved high overall academic standing and outstanding performance in Psychology

2016 Greg Ellenoff Internship Grant Fund Recipient

- Received from the Tufts Career Center to fund an unpaid summer research experience

RESEARCH EXPERIENCE

Hooker Research Group, A. A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School

Research Intern - April 2015 - Present

Principle Investigator: Jacob M. Hooker, PhD.

Mentor: Hsiao-Ying (Monica) Wey, PhD.

- Implemented a machine-learning algorithm to detect differences in the resting state functional connectivity of patients with Schizophrenia and normal controls
- Designed a pharmacokinetic simulation tool and a blood data analysis tool for PET in Matlab
- Presented research to colleagues and mentors at lab meetings

Memory and Cognition Lab, Department of Psychology, Tufts University

Undergraduate Research Assistant - May 2014 – May 2015

Principal Investigator: Richard A. Chechile, PhD.

Mentors: Erin Warren, PhD. and Daniel Barch, PhD.

- Conducted research in human subjects
- Guided participants through computer-based memory tasks to study articulatory suppression and its effect on working memory
- Updated researchers on participants' feedback and recruitment during weekly lab meetings

PUBLICATIONS AND PRESENTATIONS

Placzek, M. S., Zhao, W., Wey, H. Y., **Morin, T. M.**, & Hooker, J. M. (2015). PET neurochemical imaging modes. *Seminars in Nuclear Medicine*, 46(1), 20-27
<http://dx.doi.org/10.1053/j.semnuclmed.2015.09.001>

Morin, T. M. Creating a Computer Simulation Tool for PET Neuroimaging. *Tufts University Undergraduate Research and Scholarship Symposium*. 2016. Medford, MA.

PROJECTS

Do Prescription Opioid Drugs Modulate Functional Connectivity in Non-Human Primate Brains?

- Adapted bash scripts for preprocessing fMRI data through a custom pipeline
- Developed Matlab scripts to characterize the dynamic resting state functional connectivity of non-human primate brains

Using Hidden Markov Models to Characterize Resting State Connectivity in the Brain

- Used open source data from Open-fMRI to analyze the resting state functional connectivity in the brains of 95 patients
- Implemented machine-learning techniques to train a computer to diagnose patients as Schizophrenic, a healthy sibling of someone with Schizophrenia, or a normal control

Pharmacokinetic Simulation Tool for PET Neuroimaging

Hooker Research Group, Martinos Center, Massachusetts General Hospital – June 2015-Present

- Created a flexible system in Matlab for simulation of multiple radiotracers and kinetic models
- Developed a user-friendly interface and write clear documentation so that chemists can complete simulations without any prior-knowledge of computer-programming

GammaBomb 2.0: Blood Data Analysis Tool for PET Neuroimaging

- Improved existing Matlab code in custom-built software designed to fit time-activity curves and perform metabolite correction
- Designed a Quality Control report to better inform researchers about the progress and accuracy of their analyses
- Compiled detailed documentation in a User Guide available to members of our lab interested in using this application

SKILLS

Operating Systems

- Proficient in Unix, Mac OS, and Windows

Languages

- Fluent in C, C++, Python, Bash

Software

- Proficient in MATLAB, FSL, Mango, PsychoPy, and SPSS
- Some experience with PMOD (PET Kinetic Modeling) and Assembly (Intel)

Key Concepts

- Kinetic Modeling for PET
- Brain Functional Connectivity Analysis
- Basic Machine Learning

ADDITIONAL EXPERIENCE

Tufts University Academic Resource Center

Tutor for American Sign Language

Sept. 2016 - Present

- Host office hours and one-on-one meetings for students enrolled in three introductory levels of American Sign Language

Office of Residential Life and Learning, Tufts University

Senior Resident Assistant

Starting Aug. 2016

- Led several training sessions for the RA staff in August
- Conduct building-safety inspections and hold weekly office hours
- Serve as a mentor to 17 other RAs and oversee a floor of 40 residents

Resident Assistant

Aug. 2014 - May 2016

- Organized community events
- Conducted rounds to maintain dorm-safety
- Advised and counseled two floors of 40 residents each during their first year of college

Enigma: Tufts Independent Data Journal

Jan. 2016 - Present

Contributing Author

- Collaborated with a team of writers and data analysts to survey Tufts undergraduates about their socioeconomic status and attitudes towards economic diversity at Tufts
- Presented findings in an article (<http://tuftsensigma.org/tufts-economic-diversity/>) and at Enigma's biannual symposium

Tufts Psychology Society

Sept. 2015 - Present

Class of 2017 Representative

- Planned alumni networking events, group study sessions, a graduate student panel, a trivia night, and other informational events for undergraduate students interested in Psychology

VOLUNTEER EXPERIENCE

Tufts University Mentorship Team

June - Aug. 2016

- Paired with four incoming first-year students at Tufts to answer any questions they might have, help them navigate campus resources, and help them feel at home on campus
- Skype with each mentee several times throughout the summer

Alzheimer's Association: The Longest Day

June 2016

- Helped guide attendees and answer questions at an open house for our lab specifically aimed at raising awareness about and increasing participation in Alzheimer's research studies

DeafBlind Contact Center

Jan. - May 2016

- Supported the local DeafBlind community at events including a Game Day, Valentine's Day Party, and Painting Lessons
- Learned basic tactile signing and improved my American Sign Language skills