**Thomas Morin**

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**EDUCATION**

**Bachelor of Science, 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://tuftsenigma.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