Thomas Morin

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EDUCATION

Bachelor of Science, Cognitive and Brain Science, Computer Science - May 2017
Tufts University, Medford, MA
GPA: 3.71/4.0, 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

SpaceX People's Choice Award

- Best Talk at the 2016 Out for Undergrad – Engineering Conference

RESEARCH EXPERIENCE

Hooker Research Group, A. A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School
Research Intern **-** April 2015 - Present

- 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

- 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

PUBLICATION

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

PRESENTATIONS

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

Morin, T. M. Branching Out: What a Tree Can Teach You About Your Brain. *Out For Undergrad Engineering Conference*. 2016. Stanford Universtiy, Palo Alto, CA.

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

- 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 Aug. 2016 - Present

- 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