BENJAMIN THOMAS JUNG

(862) 234-5864 | benjamin.jung@nih.gov | benjung2514@gmail.com

EDUCATION

Brown - NIH Graduate Partnership Program in Neuroscience July, 2019 - Present
Bethesda, MD

B. Sc. Biology with Neuroscience Minor (Distinction) Sept, 2013 – April, 2016
McGill University, Montreal, QC, Canada

- GPA: 3.84

Continuing Education Aug, 2017 – Dec, 2018
Foundation for Advanced Education in the Sciences, Bethesda, MD

- Relevant Coursework: Machine Learning and Object Oriented Programming in Python, Introduction to New Technologies in Data Sciences, Deep Learning for Healthcare Image Analysis

Workshops

- Writing a Scientific Paper Workshop (2018)
- Analysis of Functional Neuroimaging (AFNI) Bootcamp (2017, 2018)
- Workshop on Open and Reproducible Neuroscience (2017)

RESEARCH EXPERIENCE

Predoctoral Research Fellow, *PhD Rotations* July, 2019 - Aug, 2019
National Institutes of Health, Bethesda, MD

- Using structural equation modeling to observe the relationship between symptoms of ADHD and measures of MRI structural and functional connectivity
- Interacted with study participants and assisted with clinical data collection.

Principal Investigator: Dr. Philip Shaw

Post-Baccalaureate Research Fellow, *Laboratory of Brain and Cognition* April, 2017 – June, 2019
National Institute of Mental Health, Bethesda, MD

- Collected, processed and analyzed magnetic resonance imaging (MRI) data for nonhuman primate (NHP) experiments (see Projects).
- Trained NHPs using eye tracking for functional MRI (fMRI) studies.
- Assisted in the collection of structural MRI, fMRI and histological sections.
- Assisted with sterile surgeries and completing routine aseptic procedures of NHPs.

Mentor: Dr. Adam Messinger
Principal Investigator: Dr. Leslie G. Ungerleider

Casual Research Assistant, *Sakata Songbird Lab* Nov, 2015 – Sept, 2016
McGill University, Montreal, QC, Canada

- Analyzed the effects of tutor-pupil interactions on the development of song structure in zebra finches *(Taeniopygia guttata).*

- Developed MATLAB scripts allowing for rapid labeling and categorization of audio files by researchers.
- Assisted in day-to-day lab operations by performing weekly checks on lab specimens, ensuring proper functioning of specimen housing and the health of lab specimens.

Mentor: Dr. Jon Sakata

PROJECTS

Templates, Atlases and Open Science

- Updating, refining and creating MRI registration and segmentation pipelines for the NIMH Macaque Template (NMT).
- Generating new symmetric NMT for use in morphological asymmetry assessment.
- Creating a multi-layered atlas of rhesus macaque cortical gray matter for use with the NMT: The Cortical Hierarchical Atlas of the Rhesus Macaque (CHARM).
- Assisting a histologist in the collection of coronal sections of the macaque brain and reconstructing digitized coronal sections into a three-dimensional, MRI- and DTI-aligned histological template.
- Participating in an online collaboration to produce the first open neuroimaging repository for raw NHP data: The Primate Data Exchange (PRIME-DE)

MRI Morphometrics

- Collaborating with the Montreal Neurological Institute to create CIVET-Macaque: a fully integrated and automated macaque structural MRI software suite.
- Performing a cross-sectional analysis of morphometric variability in NHPs using the CIVET-Macaque pipeline and data from the PRIME-DE repository.

Higher-Order Visual Processing

- Evaluating retinotopy of face and object perception in the ventral visual stream of the rhesus macaque using fMRI.
- Measuring population receptive fields in the early visual cortex of the rhesus macaque using fMRI.

LEADERSHIP EXPERIENCE

Summer Internship Mentor, ***Laboratory of Brain and Cognition*** June, 2018 – Aug, 2018
National Institute of Mental Health, Bethesda, MD

- Taught an undergraduate intern about neuroimaging, analysis pipeline creation, and scientific communication.
- Supervised the intern's research into MRI morphometrics in the macaque.
- Provided feedback, research goals and timelines, culminating in an independent poster presentation by the intern.

Undergraduate Course Assistant, ***BIOL 308: Ecological Dynamics*** Sept, 2015 – Dec, 2015
McGill University, Montreal, QC, Canada

- Worked with the Course Coordinator and Teaching Assistants to design tutorial sessions for BIOL 308 students.
- Prepared and instructed tutorial sessions designed to provide concrete examples of theoretical concepts discussed in lectures.

Dec, 2014 – Jan, 2016

Scheduling Coordinator and Dispatcher, *Walksafe*
McGill University, Montreal, QC, Canada

- Managed the Walksafe hotline and coordinated the deployment of volunteers on shift.
- Generated shift schedules for over 60 volunteers and worked with volunteers to resolve conflicts.
- Redesigned the Walksafe scheduling system to give volunteers additional flexibility and choice.

SKILLS

Computer Programming
- Python (Proficient)
- Shell Scripting (Proficient)
- R (Proficient)
- MATLAB (Intermediate)
- Java (Basic)

NHP Skills
- NHP Handling and Training
- Eye Tracking
- Sterile Surgical Technique
- MonkeyLogic Task Design

Communication
- Poster Design and Presentation
- Lab Presentations
- Scientific Writing
- GIMP/Photoshop
- Sketch

Neuroimaging Analysis
- fMRI Processing and Analysis
- Processing Pipeline Development
- Image Registration
- BIDs Formatting
- NIFTI, DICOM and MINC imaging formats

Neuroimaging Software
- AFNI + SUMA
- Advanced Normalization Tools (ANTs)
- ITK-Snap
- ImageJ
- Nibabel, Nipype and Nipy
- MIPAV
- MINC Toolkit

PUBLICATIONS

Claude Lepage, Konrad Wagstyl, Jakob Seidlitz, **Benjamin Jung**, Caleb Sponheim, Adam Messinger and Alan Evans (in preparation). CIVET-Macaque: a fully integrated and automated macaque structural MRI software suite.

Michael P. Milham, Lei Ai, Bonhwang Koo, Ting Xu, Céline Amiez, Fabien Balezeau, Mark G. Baxter, Erwin L.A. Blezer, Thomas Brochier, Aihua Chen, Paula L. Croxson, Christienne G.

Damatac, Stanislas Dehaene, Stefan Everling, Damian A. Fair, Lazar Fleysher, Winrich Freiwald, Sean Froudist-Walsh, Timothy D. Griffiths, Carole Guedj, Fadila Hadj-Bouziane, Suliann Ben Hamed, Noam Harel, Bassem Hiba, Bechir Jarraya, **Benjamin Jung**, Sabine Kastner, P. Christiaan Klink, Sze Chai Kwok, Kevin N. Laland, David A. Leopold, Patrik Lindenfors, Rogier B. Mars, Ravi S. Menon, Adam Messinger, Martine Meunier, Kelvin Mok, John H. Morrison, Jennifer Nacef, Jamie Nagy, Michael Ortiz Rios, Christopher I. Petkov, Mark Pinsk, Colline Poirier, Emmanuel Procyk, Reza Rajimehr, Simon M. Reader, Pieter R. Roelfsema, David A. Rudko, Matthew F.S. Rushworth, Brian E. Russ, Jerome Sallet, Michael Christoph Schmid, Caspar M. Schwiedrzik, Jakob Seidlitz, Julien Sein, Amir Shmuel, Elinor L. Sullivan, Leslie Ungerleider, Alexander Thiele, Orlin S. Todorov, Doris Tsao, Zheng Wang, Charles R.E. Wilson, Essa Yacoub, Frank Q. Ye, Wilbert Zarco, Yong-di Zhou, Daniel S. Margulies and Charles E. Schroeder (PRIME-DE Consortium) (2018). An open resource for nonhuman primate neuroimaging. *Neuron.*

POSTERS AND PRESENTATIONS

Benjamin Jung*, Adam Messinger (2019). Resources for Analyzing and Sharing Macaque Neuroimaging Data. Laboratory of Brain and Cognition Meeting, February 5th 2019

Benjamin Jung*, Jakob Seidlitz, Caleb Sponheim, Leslie G. Ungerleider, Adam Messinger (2018). A digital hierarchical atlas and anatomical template of the macaque brain. Society for Neuroscience, November 4th 2018

Benjamin Jung*, Ankush Bajaj, Leslie G. Ungerleider, Adam Messinger (2018). Assessing Variability in Macaque Brain Morphometry. NIMH/IRP Fellows' Annual Scientific Training Day, September 7th 2018

Ankush Bajaj*, **Benjamin Jung**, Leslie G. Ungerleider, Adam Messinger (2018). Characterizing Rhesus Monkey Brains from Anatomical MRI Scans. Summer Research Poster Day, August 6th 2018

Claude Lepage*, Konrad Wagstyl, Jakob Seidlitz, Caleb Sponheim, **Benjamin Jung**, Adam Messinger, Alan C Evans (2018). A fully automated cortical surface extraction pipeline for the macaque. Organization for Human Brain Mapping, June 17, 2018

Benjamin Jung*, Leslie G. Ungerleider, Adam Messinger (2018). Hierarchical Parcellation of the Rhesus Macaque Brain. National Institutes of Health Post-Baccalaureate Poster Day 2018, May 2nd 2018

Benjamin Jung*, Jakob Seidlitz, Caleb Sponheim, Leslie G. Ungerleider, Adam Messinger (2017). A population MRI brain template and analysis tools for the macaque. Society for Neuroscience, November 14th 2017

Adam Messinger*****, **Benjamin Jung***, Caleb Sponheim, Leslie G. Ungerleider (2017). fMRI Mapping of Spatial Preferences in Rhesus Macaque Face Patches. Society for Neuroscience, November 14th 2017

Benjamin Jung*, Jakob Seidlitz, Alex Cummins, Adam Messinger (2017). 3D Reconstruction of Histological Slices from the Rhesus Macaque Brain. NIMH/IRP Fellows' Annual Scientific Training Day, September 11th 2017

Caleb Sponheim*, **Benjamin Jung**, Adam Messinger, Leslie Ungerleider (2017). Mapping spatial preferences in face and object patches in the Rhesus Macaque using fMRI. Vision Sciences Society, May 20th, 2017

* Presenting authors