**EQUIPMENT**

Main campus:

*Laboratory equipment:* In Dr. Helion’s lab, I have access to 6 desktop computers equipped with programming and statistical software (e.g., SPSS, R, PsychoPy, E-prime, MATLAB, FSL, SPM, etc.), including a 96 CPU cores, 128GB RAM, 20 TB Ubuntu 20.04 machine designed for managing and analyzing fMRI data locally. A combination of these computing resources will be used to design computer-based stimuli for my project and to analyze behavioral and neuroimaging data.

*Temple University Brain Research & Imaging Center (TUBRIC):* Temple is also equipped with a brand new state-of-the-art imaging facility, TUBRIC, in the basement of the psychology building, Weiss Hall. The facility was completed in 2018 with funding provided by the National Science Foundation (NSF) in the form of a “Major Research Instrumentation” award of approximately $2.4 million. TUBRIC’s scanner is a Siemens 3T Magnetom Prisma, which supports sequences for structural, functional, diffusion, perfusion, and spectroscopy scans. TUBRIC also has a research license to extend the functionality of the scanner. The scanner also is equipped with integrated stimulus delivery and response collection hardware, including a Hyperion projector, OptoAcoustics OptoActive noise-cancelling headphones, OptoAcoustics FOMRI-III active noise-cancelling microphone, Psychology Software Tools 5-button response units (left/right), Psychology Software Tools 4-button joystick, and Current Designs 4-button response units (left/right). The scanner also is equipped with an Eyelink 1000 Plus eye-tracking system and BIOPAC hardware to track heart rate, respiration, and other physiological measures. I have access to TUBRIC scheduling calendar online at all times and there are generally many open slots each week for scheduling participants. I have experience running scans in TUBRIC and am well-acquainted with both the hardware and software in the facility, as well as having working relationships with the administrators, scientists, and faculty who work in TUBRIC, allowing me to reach out with any problems I might encounter during imaging data collection for my project.

Specific available resources and equipment in TUBRIC:

* High-speed ethernet connections, wi-fi, Mac, PC, and linux computers, photocopiers and color printers, as well as standard office equipment (desks, chairs, etc.) in all offices
* A Siemens MAGNETOM Prisma 3-T whole-body MRI scanner in the basement of Weiss Hall. TUBRIC also has neighboring equipment and control rooms, a mock scanner, several flexible participant interview/assessment/ testing rooms, reception and waiting areas, washroom and lockers, office and data analysis spaces, and ample room for additional equipment storage. Integrated tools will include MRI compatible stimulus delivery (e.g., visual projection, audio, liquid delivery, electric shock delivery), response collection, physiological monitoring, and eye-tracking devices. This center was specifically designed to be child-friendly.
* Several EEG and eye-tracking systems in TUBRIC and various labs in the department
* Soterix transcranial direct current stimulation equipment
* A high-performance computing cluster that includes 5360 CPU cores, 41 TB RAM, and 2 PB shared storage. This will be used for DWI analysis. The diffusion-weighted imaging analyses proposed in Aim 3 will be conducted using the FMRIB's Diffusion Toolbox (FDT) from FMRIB Software Library (FSL). I will perform probabilistic tractography with a partial volume model. As this process is very computationally demanding, probabilistic tractography will be carried out in pseudo-parallel on Temple University’s high-performance computing cluster (OwlsNest) located in the Science Education and Research Center.
* Site licenses and/or subscription access for essential software and database applications, including: MATLAB, SPSS, SAS, RedHat, Qualtrics, Adobe Cloud Services, MS Office, etc.
* A 195 TB server for Helion lab neuroimaging projects
* A new campus library, which is a five-minute walk from the Department of Psychology, containing books, journal articles, and information databases