Taylor A. Chamberlain

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EDUCATION

University of Chicago 2012-2016
B.A. in Economics with honors

Linear Algebra, Statistical Models and Methods, Math Methods for the Social Sciences, Calculus III, Biological Psychology, Developmental Psychology, Workings of the Human Brain: From Brain to Behavior, Molecular Mechanisms of Human Disease, Intro to Computer Systems, Intro to Computer Science, Computational Linguistics, Econometrics

HONORS AND AWARDS

University of Chicago University Merit Scholarship 2012-2016
University of Chicago Dean's List 2012-2016
Foreign Language Acquisition Grant Recipient 2014

RESEARCH EXPERIENCE

Cognition, Attention, and Brain Lab, University of Chicago 2020-Present
Research staff, Advisor: Dr. Monica Rosenberg

- Analyzed fMRI data using functional connectivity analyses, predictive modeling, representational similarity analysis, and inter-subject correlation
- Refactored existing fMRI preprocessing pipeline into a single script run through SLURM
- Applied fMRI preprocessing pipeline to data from approximately 1500 participants from multiple samples including the Healthy Brain Network Biobank
- Designed, coded, and analyzed data collection for multiple online experiments using JsPsych and Prolific
- Trained PhD students on fMRI preprocessing pipeline, online experiment coding and deployment, and fMRI analysis preregistration
- Mentored undergraduate student on project predicting narrative stimulus recall from functional connectivity data
- Drafted manuscript and assisted in preparation of other manuscripts for publication
- Performed visual quality control on structural and functional fMRI data from approximately 3,000 adult, child, and infant participants

Memory Lab, University of Chicago 2018-2020

Research staff, Advisor: Dr. David Gallo

- Designed and conducted an episodic and working memory experiment, consisting of three 1.5-hour sessions per participant, collecting 130 participants total
- Analyzed differences in episodic memory and metamemory performance between older and younger adults in Python
- Trained, coordinated schedules for, and supervised six undergraduate research assistants
- Coded three online episodic memory behavioral experiments for graduate students using Python and JsPsych
- Designed and coded five episodic memory behavioral experiments in Psychopy for graduate students
- Maintained detailed documentation for experimental protocol
- Implemented automated participant email and text reminders, automated calendar scheduling and automated inclusion screening survey checks

Department of Psychology & Department of Economics, University of Chicago 2014-2015

Research Assistant, Advisor: Lester Tong

- Trained participants prior to fMRI sessions for a study about the impact of selling experience on the endowment effect
- Contacted potential participants and coordinated scheduling
- Created stimuli for experimental tasks in MATLAB

Yantis Attention Lab, Johns Hopkins University 2011-2012

Research Assistant, Advisors: Steven Yantis, Anthony Sali

- Assisted fMRI data preprocessing for analysis using MATLAB and AFNI
- Ran simulations on a simple artificial neural network and conducted preliminary analysis in R
- Provided student feedback on a draft of Dr. Yantis' textbook *Sensation and Perception*
- Coordinated participant recruitment and enrollment in behavioral studies involving attention, reward, and task switching

OTHER RELEVANT EXPERIENCE

Civis Analytics 2016-2018

Software Engineer, Supervisor: Paul Suda

- Lead a team of two engineers in development of a new data analysis software application with a Python/Flask backend and a ReactJs frontend
- Implemented proprietary identity resolution algorithm in Python in a team of four
- Authored significant contributions to Civis's data science platform including a Google Drive data import feature in Ruby
- Developed a variety of frontend features from scratch, including D3 data visualizations

Urban Labs, University of Chicago 2014-2015

Research Assistant, Advisor: Aurelie Ouss

- Analyzed Chicago Public School data in R for multiple randomized control trials
- Developed R-package for automating statistical power calculations
- Designed, built, and deployed a web app prototype designed to help Chicago students find and plan activities

MANUSCRIPTS

Chamberlain, T. A., & Rosenberg, M. D. (in press). Propofol modulates functional connectivity signatures of sustained attention during rest and narrative listening. *Cerebral Cortex.* *[Link]*

Kardan, O., Stier, A. J., Cardenas-Iniguez, C., Pruin, J., Schertz, K., Deng, Y., **Chamberlain, T.A.,** Meredith, W. J, Zhang, Z., Bowman , J., Lakhtakia, T., Tindel, L., Avery, E., Lin, Q., Yoo, K., Chun, M., Berman, M. G., & Rosenberg, M. D. (under review). Adult neuromarkers of sustained attention and working memory predict inter- and intra-individual differences in these processes in youth. *bioRxiv,* doi.org/10.1101/2021.08.01.454530.

Kardan, O., Kaplan S., Wheelock, M., Feczko, E., Day, T., Miranda-Domínguez, O., Meyer, D., Eggebrecht, A., Moore, L., Sung, S., **Chamberlain, T. A.,** Earl, E., Snider, K., Graham, A., Berman, M. G., Uğurbil, K., Yacoub, E., Elison, J.T., Smyser, C.D., Fair, D.A., & Rosenberg, M. D. (under review). Resting-state functional connectivity identifies individuals and predicts age in 8-to-26-month-olds.

Li, X., **Chamberlain, T. A.,** Gallo, D.A. (in preparation). Aging and Two False Recollection Mechanisms: Conceptual Fluency and Perceptual Recombination.

PRESENTATIONS

Chamberlain, T. A., Parsing Brain-Behavior Relationships with Intersubject Correlation. Talk given at FINN Lab Meeting, Dartmouth, 2021.

Chamberlain, T. A., Corriveau, A., Song, H., & Rosenberg, M. D. Tracking the Dynamics of Neural Synchrony with Time-Resolved Inter-subject Correlation. Poster presented at Society for Neuroscience 2021, virtual conference. *[Link]*

Chamberlain, T. A., & Rosenberg, M. D. Propofol Modulates Functional Connectivity Signatures of Sustained Attention During Rest and Narrative Listening: A preregistered replication and extension. Poster presented at Organization for Human Brain Mapping 2021. *[Link]*

Kardan, O., Stier, A. J., Cardenas-Iniguez, C., Pruin, J., Schertz, K., Deng, Y., **Chamberlain, T. A.,** Meredith, W. J, Zhang, Z., Bowman, J., Lakhtakia, T., Tindel, L., Avery, E., Lin, Q., Yoo, K., Chun, M., Berman, M. G., & Rosenberg, M. D. Neuromarkers of Sustained Attention and Working

Memory Generalize to Distinguish These Processes in Children. Poster presented at Organization for Human Brain Mapping 2021, virtual conference.

Chamberlain, T. A., & Rosenberg, M. D. Functional Connectivity Measured During Movie Watching, But Not Rest, Predicts Social Function in Children and Adolescents. Poster presented at NeuroMatch 2020, virtual conference.

Chamberlain, T. A., Hirsch, G., & Gallo, D. A. Age-Related Reduction in the Confidence Accuracy Relationship in Episodic Memory. Poster presented at Psychonomics 2020, virtual conference.

Miller, N., Yu, C., **Chamberlain, T. A.,** & Gallo, D. A. Revisiting the Darkside of Context: Extending the Context Illusion on Memory to Older Adults. Poster presented at Psychonomics 2020, virtual conference.

PROJECTS IN PROGRESS _____

Chamberlain, T.A., Corriveau, A., Song, H., & Rosenberg, M. D. Inter-subject representational similarity analysis in children aged 6-21. In the data analysis phase.

Hirsch, E., **Chamberlain, T.A.**, Arar, T., Snarskis, M., Wakeland-Hart, C., Malone, M., Lauderdale, D., Schumm, P. , Gallo, D.A., Effect of Noninvasive Electrical Brain Stimulation on Memory Performance at Different Times of Day in Younger and Older Adults. In the data collection phase.

TECHNICAL SKILLS_____

General Programming: Python, R, Git, Ruby, MatLab, bash, Slurm

Web Development: JavaScript (React, D3, Angular), HTML, CSS, Flask, Heroku, Docker, Rails, Elastic Search

Neuroimaging & Experiment Development: AFNI, PsychoPy, JsPsych, Psiturk, Prolific, Mturk

WORKSHOPS & ADDITIONAL COURSEWORK_____

PSYC 42350 Advanced Topics in Human Neuroimaging *(audited)*
PSYC 20400 Cognitive Psychology *(audited)*
PSYC 23820 Attention and Working Memory in the Mind and Brain *(audited)*
NIMH Workshop on Naturalistic Stimuli and Individual Differences
NIMH Advanced Statistical Methods and Dynamic Data Visualizations for Multidimensional Neuro-Behavioral Data workshop
Innovators in Cognitive Neuroscience Series
University of Chicago Department of Psychology cognitive brown bag series