

# McKenzie Paige Hagen

Department of Psychology | University of Washington, 98105

✉ mphagen@uw.edu • 🌐 mckenziephagen • 📧 McKenzie Hagen

## Education

---

**PhD Psychology**, Expected 2026

University of Washington, Seattle

September 2021 - present

**Bachelor of Science with a Distinction in Psychology**

University of Washington, Seattle

June 2018

**Thesis:** Language as a Mediator between Socioeconomic Status and Executive Function

## Fellowships and Awards

---

**Department of Energy Computational Science Graduate Fellowship**

Awarded

2022-2026

**ReproNim/International Informatics Coordinating Facility "Train-the-Trainer" Fellowship**

Awarded

2024

**National Science Foundation Graduate Research Fellowship**

Awarded (declined in favor of CSGF)

2022

Honorable Mention

2021

**Edwin R. Guthrie Undergraduate Award for Meritorious Essay in Psychology**

Awarded

2018

## Publications

---

Kruper, J., **Hagen, M.**, et al. (In Press). Tractometry of the Human Connectome Project: Resources and Insights. *Frontiers in Neuroscience*.

Bisset, P., Jones, H., ... **Hagen, M.**, et al. (2023). Cognitive tasks, anatomical MRI, and functional MRI data evaluating the construct of self-regulation. *bioRxiv*.

Bisset, P., Jones, H., **Hagen, M.**, et al. (2022). Towards a taxonomy of inhibition-related processes: A dual task approach. *JEP: Human Perception and Performance*.

Vaghi, M., **Hagen, M.**, et al. (2022). Relating psychiatric symptoms and self-regulation during the COVID-19 crisis. *Translational Psychiatry*.

Bissett, P., **Hagen, M.**, Jones, H., Poldrack, R. (2021). Design issues and solutions for stop-signal data from the Adolescent Brain Cognitive Development [ABCD] study. *eLife*.

Lurie, L.\*, **Hagen, M.\***, et al. (2021). Mechanisms linking socioeconomic status and academic achievement in early childhood: Cognitive stimulation and language ability. *Cognitive Development*.

Rosen, M, **Hagen, M.**, et al. (2019). Cognitive stimulation as a mechanism linking socioeconomic status with executive function: A longitudinal investigation. *Child Development*.

**Hagen, M.**, et al. (In prep). Quality Control of acquired anatomical and functional MRI data of the human brain.

\*indicates co-first authorship

## Research Experience

---

### Neural Systems and Data Science Lab

Practicum Student | Lawrence Berkeley National Lab, Berkeley

August 2023-Present

Advisor: Kristopher Bouchard (PI)

*Evaluating methods for calculating functional connectivity*

- Parallellized computations of regularized partial correlations for functional connectivity for several large datasets.
- Applied network statistics to functional connectivity matrices calculated with a methods to identify reliable and predictive connectivity methods.

### Neuroinformatics Research and Development Group

PhD Student | University of Washington, Seattle

September 2021-Present

Advisor: Ariel Rokem (PI)

*Combining Neuroimaging Modalities to Predict Cognition*

- Used stacked ensemble model to combine several MRI modalities into a single predictive model of cognition using 'glmnet' R package

*Investigating the Heritability of White Matter*

- Used variance component models and predictive models of behavioral phenotypes to identify mechanistic white matter links between genetics, environment, and behavior.

*Large-Scale Diffusion Data Processing with Datalad*

- Processed diffusion tractometry with pyAFQ using datalad data provisioning on high performance compute cluster.

### Poldrack Lab

Research Coordinator | Stanford University

August 2018-August 2021

Advisors: Russ Poldrack (PI), Patrick Bissett

*Building an Ontology of Self Regulation using a Multiverse Approach*

- Related behavioral and MRI data to understand the neural processes involved in self-regulation
- Created and oversaw quality control processes using MRIQC software for hundreds of MRI scans

*Targeting Cognitive Control Networks through Precision Neuroscience*

- Collaborated with physicists at MRI facility to develop novel MRI sequence
- Recruited and retained pilot dataset of 5 participants scanned 12 times over six months

*Investigating Design Issues and Solutions for the Stop-signal Data from the ABCD Study*

- Identified several sub-optimal design choices in the stop signal task used by the Adolescent Brain and Cognitive Development consortium
- Quantified the impact of those issues on the behavioral metrics derived from the stop signal task and disseminated suggested solutions for other researchers using the task

*Investigating the Impact of Coronavirus Lockdown on Self-Regulation*

- Recontacted and collected 12 hours of behavioral and survey data from over 100 participants via Mechanical Turk to characterize the impacts of the initial COVID-19 lockdown on cognition and psychopathology

### Stress and Development Lab

Research Assistant | University of Washington, Seattle

June 2016-June 2018

Advisors: Kate McLaughlin (PI), Maya Rosen

*Language as a Mediator between Socioeconomic Status and Executive Function*

- Completed honors thesis on the mediating effect of language on the relation between socio-economic status and executive function in children, and won award for the clarity and accessibility of thesis

## Presentations

---

### Oral Presentations.....

Hagen, M. and Rokem A. (2022, June) *Predicting behavior from multiple MRI modalities using a stacked model approach*. Talk Presented at University of Washington Research Festival, Seattle, WA.

Hagen, M., Rosen, M., McLaughlin, K. (2018, June) *Language as a Mediator of Socioeconomic Status and Executive Function*. Talk Presented at University of California Psychology Undergraduate Research Conference, Los Angeles, CA.

## Poster Presentations.....

Hagen, M. et al., (2023, July) *Predicting Behavioral Phenotypes from Diffusion MRI Data Using LASSO-Regularized Models*. Poster Presented at Computational Science Graduate Fellowship Annual Review, Washington, DC.

Bissett, P. et al., (2022, June) *Toward a neuro-cognitive ontology of self-regulation*. Poster Presented at Organization for Human Brain Mapping, Glasgow, Scotland

Bissett, P. et al., (2022, June) *A dual-task approach to inform the taxonomy of inhibition-related processes*. Poster Presented at Organization for Human Brain Mapping, Glasgow, Scotland

Richie-Halford, A. et al., (2022, June) *NiRV: the Neuroimaging Report Viewer*. Poster Presented at Organization for Human Brain Mapping, Glasgow, Scotland

Bissett, P., Hagen, M., et al., (2021, June) *Design Issues and Solutions for Stopping Data from the Adolescent Brain and Cognitive Development Development Study*. Poster Presented at Organization for Human Brain Mapping, Seoul, South Korea

Hagen, M., Rosen, M., McLaughlin, K. (2019, March) *Language as a Mediator of Socioeconomic Status and Executive Function: A longitudinal investigation*. Poster Presented at Society for Research in Child Development, Baltimore, MD

Hagen, M., Rosen, M., McLaughlin, K. (2018, May) *Language as a Mediator of Socioeconomic Status and Executive Function*. Poster Presented at University of Washington Psychology Undergraduate Honors Symposium, Seattle, WA.

## Technical Skills

---

### Programming experience.....

- Independently coded large analytic pipelines in R and Python
- Created Docker and Singularity images
- Version controlled all analyses with git
- Used multiple different high performance compute clusters for computationally intense analyses

## Teaching and Mentorship

---

### Psychology Undergraduate Mentorship Program

September 2022-present

Met with students weekly to support their progress into the Psychology major.

### Software Carpentries Workshop Instructor Assistant

Fall 2022-present

Supported Instructors during Software Carpentries Workshops teaching git, R, and Python.

### Neuroscience Undergraduate Reading Program

Fall 2022

Met weekly with neuroscience students to read papers related to their research interests.