

# Alexandra K. Fischbach

## Doctoral Candidate

Department of Psychology & Center for Cognitive and Brain Health

Northeastern University • College of Science • Boston, MA 02118

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## EDUCATION

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### NORTHEASTERN UNIVERSITY

Boston, MA

Doctoral Candidate, Neuroscience

2023-Present

GPA: 4.0

Expected Fall 2025

- Advisor: Stephanie Noble, PhD
- Dissertation: *Characterizing Subcortical fMRI Signal: the Impact of Local Cerebrospinal Fluid Noise Correction*

### NORTHEASTERN UNIVERSITY

Boston, MA

Master of Science, Psychology

2020-2023

GPA: 4.0

- Primary Advisor: Lisa Feldman Barrett, PhD
- Secondary Advisor: Karen Quigley, PhD
- Master's Thesis: *Columnar Periaqueductal Gray Activity in Human Working Memory*

### PROVIDENCE COLLEGE

Providence, RI

Bachelor of Arts, Psychology

2013-2017

Bachelor of Arts, Biology

Certificate in Neuroscience

GPA: 3.72

- Admitted as 1 of 8 students annually to the Neuroscience Program, consisting of a small cohort of biology and psychology double majors recognized for academic excellence and clear research interests.
- Graduated with distinction (honors)

## EXPERIENCE

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### NORTHEASTERN UNIVERSITY

Boston, MA

Center for Cognitive and Brain Health,

2023-Present

Neuroscience Precision Research & Idiographic Statistical Methods (NeuroPRISM) Laboratory

- Graduate Research Assistant
- Primary Investigator: Stephanie Noble, PhD

### NORTHEASTERN UNIVERSITY

Boston, MA

Department of Psychology, Interdisciplinary Affective Science (IAS) Laboratory

2020-2023

- Graduate Research Assistant
- Primary Investigator: Lisa Feldman Barrett, PhD

**BOSTON UNIVERSITY** **Boston, MA**  
**Boston Medical Center, Division of Medicine** **2020**

- Clinical Trial Program Manager

**MASSACHUSETTS GENERAL HOSPITAL** **Boston, MA**  
**Department of Neurology, J. Philip Kistler Stroke Research Center** **2018-2020**

- Clinical Research Coordinator II

**BETH ISRAEL DEACONESS MEDICAL CENTER** **Boston, MA**  
**Department of Neurology** **2018**

- Neuropathology Research Assistant

**DANISH INSTITUTE FOR STUDY ABROAD** **Copenhagen, Denmark**  
**Department of Psychology and Cognitive Neuroscience** **2017-2018**

- Teaching/Program Assistant

**PROVIDENCE COLLEGE** **Providence, RI**  
**Department of Psychology, Providence Affective Neuroscience (PAN) Laboratory** **2016-2017**

- Undergraduate Research Assistant
- Primary Investigator: Christopher Bloom, PhD

**BROWN UNIVERSITY** **Providence, RI**  
**Department of Cognitive, Linguistic, and Psychological Sciences** **2015-2017**

- Undergraduate Research Assistant
- Primary Investigators: Katherine Phillips, PhD; Kevin Bath, PhD, Christopher Bloom, PhD

**PROVIDENCE COLLEGE** **Providence, RI**  
**Department of Psychology, Neuroscience and Animal Cognition (NAC) Laboratory** **2014-2016**

- Undergraduate Research Assistant
- Primary Investigator: Victoria Templer, PhD

## **TEACHING EXPERIENCE**

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**NORTHEASTERN UNIVERSITY** **Boston, MA**  
**Department of Psychology** **2020-Present**

- Teaching Assistant
  - Undergraduate courses: Developmental Psychology Lab, Statistics, Quantitative Topics in Psychology and Behavioral Neuroscience
- Teaching Assistant; Grader
  - Graduate courses: Machine Learning, Data Science for Human Neuroscience Research

**NORTHEASTERN UNIVERSITY** **Boston, MA**  
**Department of Psychology** **Spring-2022**

- Student Instructor

- Undergraduate course: Affective Science Lab

## DANISH INSTITUTE FOR STUDY ABROAD

Copenhagen, Denmark

### Department of Psychology and Cognitive Neuroscience

2017-2018

- Teaching/Program Assistant
  - Undergraduate courses: Cognitive Neuroscience, European Clinical Psychology, Positive Psychology

## MENTORING EXPERIENCE

### High-school Students:

Samuel Joseph, *NeuroPRISM Summer Intern, Northeastern University*

Summer 2024

### Master Students:

Aneesh Kumar, *NeuroPRISM Research Volunteer, Northeastern University*

Summer 2024-Fall 2024

### Undergraduate Students:

Catherine Cahill, *NeuroPRISM Research Assistant Co-op, Northeastern University*

Spring 2025-Summer 2025

### Research Assistants:

Hallee Shearer, M.S., *NeuroPRISM Research Assistant & Lab Manager, Northeastern University*

2023-Present

### Post-doctoral Researchers:

Fabricio Cravo, Ph.D. (computer science), *NeuroPRISM Postdoctoral Researcher, Northeastern University*

2024-Present

## WORKSHOPS & SUMMER SCHOOLS

### Brainhack Boston: NEU 2026 (Lead Organizer)

2025

- Collaborative workshops developed to accelerate the adoption of data science and computational methods in Neuroscience.

### Neuroimaging Statistics Workshop

2025

- Presented as part of the Organization for Human Brain Mapping (OHBM) 2025 program, this workshop highlighted emerging techniques in brain imaging analysis and statistical modeling.

### Brainhack Boston: NEU 2025 (Organizer & Lecturer)

2025

### Brainhack Boston: NEU 2024 (Organizer & Participant)

2024

### Neurohackademy

2024

- A summer institute spanning two weeks at the University of Washington in Seattle, led by Dr. Ariel Rokem, focused on neuroimaging, machine learning, reproducible data science, computer programming, open science, and practical applications.

### Psychology, engineering, and neuroscience (PEN) working group

2020-2023

- A multidisciplinary team, led by Dr. Lisa Feldman Barrett, committed to learning and discussing optimal research techniques by combining insights from psychology, engineering, and neuroscience.

### Psychophysiology working group

2020-2023

- A weekly discussion group, led by Dr. Karen Quigley, focused on exploring the role of the central nervous system in shaping psychological experiences.

## SELECTED COURSES

### Machine Learning

2024

### Computational Modeling of Neuroeconomics

2022

### Quantitative Methods II

2021

### Quantitative Methods I

2020

## Neuroimaging Applications for Clinical Neuroscience

2020

## Behavioral Pharmacology

2019

## AD-HOC REVIEW

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### Journals:

Review profile at: <https://www.webofscience.com/wos/author/record/KBQ-2159-2024>

- Cell Reports, Developmental Cognitive Neuroscience, Human Brain Mapping, Imaging Neuroscience, Neuron, Scientific Reports

## BOOK CHAPTERS

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Xu, T., **Fischbach, A.K.**, Bridgeford, E.W., Bayrak, R.G., Vogelstein, J., Noble, S., & Anteraper, S. (accepted, anticipated 2025). Current limitations in functional connectivity assessment: Suggestions for analysis improvements. In M. A. Rocca & M. Filippi (Eds.), Functional connectivity of the human brain: From mechanisms to clinical applications (Chapter 14). Elsevier.

## PUBLICATIONS

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### PEER-REVIEWED PUBLISHED MANUSCRIPTS

**Fischbach A.K.**, Satpute A.B., Quigley K.S., Kragel P.A., Chen D., Bianciardi M., Wald L.L., Wager T.D., Choi J.K., Zhang J., Barrett L.F., Theriault J.E. Seven Tesla Evidence for Columnar and Rostral-Caudal Organization of the Human Periaqueductal Gray Response in the Absence of Threat: A Working Memory Study. J Neurosci. 2024 June 26;44.

- Published with distinction: Selected as a featured article.

### MANUSCRIPTS SUBMITTED AND UNDER REVIEW

Theriault, J.E., **Fischbach, A.K.**, Kragel, P.A., Wager, T.D., Wald, L.L., Bianciardi, M., Quigley, K.S., Barrett, L.F., & Satpute, A.B. (under review). Distinct spatial patterns of neural and physiology related activity in the human periaqueductal gray during anticipatory social stress.

Shearer, H., Rosenblatt, M., Ye, J., Jiang, R., Tejavibulya, L., Foster, M., Liang, Q., Dadashkarimi, J., Westwater, M.L., Cahill, C., Cheng, I., **Fischbach, A.K.**, Humphries, A., Baskaran, A.K., Rolison, M.J., Peterson, H., Adkinson, B.D., Mehta, S., Camp, C., Nichols, T.E., Curtiss, J., Scheinost, D., & Noble, S. (under review). BrainEffeX: A web app for exploring fMRI effect sizes.

### MANUSCRIPTS IN PREPARATION

**Fischbach, A.K.**, Shearer, H., Satpute, A.B., Quigley, K.S., Theriault, J.E., Barrett, L.F., Noble, S. (in prep). Comparative analysis of cerebrospinal fluid artifact removal methods in subcortical structures: implications for functional connectivity and task-based activation using 7-Tesla fMRI.

Shearer, H., Rosenblatt, M., Ye, J., Jiang, R., Tejavibulya, L., Liang, Q., Dadashkarimi, J., Westwater, M., Cheng, I., **Fischbach, A.K.**, Humphries, A., Kumar, A., Rolison, M., Peterson, H., Adkinson, B., Mehta, S., Camp, C., Nichols, T., Curtiss, J., Scheinost, D., Noble, S. (in prep). BrainEffeX: A Web App for Exploring fMRI Effect Sizes.

## INVITED TALKS

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- Providence College - Careers in Neuroscience **2024**
- Providence College - Neuroscience Senior Capstone **2023**
- Northeastern University - Social and Personality Area Meeting **2022**
- Providence College - Laboratory in Experimental Biopsychology **2021**

## LIGHTNING TALKS/ DATABLITZ

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**Fischbach, A.K.**, Shearer, H., Noble, S. (Dec., 2024). Spatially-Driven Cerebrospinal Fluid Correction: A Framework for Improved Subcortical fMRI Analysis. 2nd Annual meeting of BrainHack: NEU at Northeastern University, Boston, MA.

**Fischbach, A.K.**, Shearer, H., Satpute, A.B., Quigley, K.S., Theriault, J.E., Barrett, L.F., Noble, S. (July, 2024). Evaluating Reliability in Subcortical Structures Through Masking Techniques using 7-Tesla fMRI. Annual meeting of Neurohackademy at the University of Washington, Seattle, WA.

## SYMPOSIA

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**Fischbach, A.K.**, Satpute, A.B., Quigley, K.S., Kragel, P.A., Bianciardi, M., Wald, L.L., Wager, T., Barrett, L.F., Theriault, J.E. (March, 2022). Columnar Periaqueductal Gray Activity in Human Working Memory. Annual meeting of the Northeastern University Master's Convention, Boston, MA.

## CONFERENCE POSTERS

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**Fischbach, A.K.**, Shearer, H., Satpute, A., Theriault, J., Quigley, K., Barrett, L. F., Noble, S. (July, 2025). Improving subcortical fMRI fidelity via region-specific CSF noise correction. 3rd Annual meeting of the Neuroscience of the Everyday World Conference, Boston, MA.

**Fischbach, A.K.**, Karamzadeh, M., Scheinost, D., Loth, F., Nobel, S. (July, 2025). Asymptomatic tonsillar herniation exhibits unique functional connectivity patterns: Evidence from the ABCD Study. 3rd Annual meeting of the Neuroscience of the Everyday World Conference, Boston, MA.

**Fischbach, A.K.**, Shearer, H., Satpute, A.B., Quigley, K.S., Theriault, J.E., Barrett, L.F., Noble, S. (June, 2025). Deconfounding Subcortical Signals in fMRI by Modeling Region-Specific CSF Noise in Resting-state and Task-fMRI. 31st annual meeting of the Organization for Human Brain Mapping, Brisbane, Australia.

Shearer, H., Rosenblatt, M., Ye, J., Jiang, R., Tejavibulya, L., Liang, Q., Dadashkarimi, J., Westwater, M., Cheng, I., **Fischbach, A.K.**, Humphries, A., Kumar, A., Rolison, M., Peterson, H., Adkinson, B., Mehta, S., Camp, C., Nichols, T., Curtiss, J., Scheinost, D., Noble, S. (June, 2025). BrainEffex: an interactive web application for exploring typical fMRI effect size estimates. 31st annual meeting of the Organization for Human Brain Mapping, Brisbane, Australia.

**Fischbach, A.K.**, Shearer, H., Satpute, A.B., Quigley, K.S., Theriault, J.E., Barrett, L.F., Noble, S. (March, 2025).

Targeting region-specific cerebrospinal fluid noise to enhance subcortical neural estimates in fMRI. 32nd annual meeting of the Cognitive Neuroscience Society, Boston, MA.

Shearer, H., Rosenblatt, M., Ye, J., Jiang, R., Tejavibulya, L., Liang, Q., Dadashkarimi, J., Westwater, M., Cheng, I.,

**Fischbach, A.K.**, Humphries, A., Kumar, A., Rolison, M., Peterson, H., Adkinson, B., Mehta, S., Camp, C., Nichols, T., Curtiss, J., Scheinost, D., Noble, S. (March, 2025). BrainEffeX: A web app for exploring fMRI effect sizes. 32nd annual meeting of the Cognitive Neuroscience Society, Boston, MA.

**Fischbach, A.K.**, Shearer, H., Satpute, A.B., Quigley, K.S., Theriault, J.E., Barrett, L.F., Noble, S. (April, 2024). Assessing the impact of subject-specific masks on reliability of subcortical connectivity. 31st annual meeting of the Cognitive Neuroscience Society, Toronto, CA.

**Fischbach, A.K.**, Shearer, H., Satpute, A.B., Quigley, K.S., Theriault, J.E., Barrett, L.F., Noble, S. The PAG puzzle: strategies to overcome anatomical variability and improve reliability (April, 2024). Annual meeting of Northeastern University's Research, Innovation, Scholarship, Entrepreneurship Virtual Exposition, Boston, MA.

**Fischbach, A.K.**, Satpute, A.B., Quigley, K.S., Kragel, P.A., Bianciardi, M., Wald, L.L., Wager, T., Barrett, L.F., Theriault, J.E. (Sept., 2023). 7 Tesla evidence for columnar and rostral-caudal organization of the human periaqueductal gray response in the absence of threat: a working memory study. 63rd annual meeting of the Society for Psychophysiological Research, New Orleans, LA.

**Fischbach, A.K.**, Burke, E., Knizek, L., Wilk, F., Bloom, C.M. (May, 2017). Control over stressors in adolescence modifies the effect of early life stress across the life-span. 29th annual meeting for the Association for Psychological Science, Boston, MA.

**Fischbach, A.K.**, Bloom, C.M., Phillips, K.A., Bath, K.G. (July, 2016). Genetic association of GABRG2 and body dysmorphic disorder in a mouse model. 9th annual Rhode Island Summer Undergraduate Research Fellows (SURF) Conference, Kingston, RI.

Burke, E., **Fischbach, A.K.**, Davenport, C., Knizek, L., Wilk, F., Bloom, C.M. (July, 2016). The effect of stress controllability on anxiety and nociception from juvenility to adulthood. 9th annual Rhode Island Summer Undergraduate Research Fellows (SURF) Conference, Kingston, RI.

Hemmer, B.M., **Fischbach, A.K.**, Templer, V.L. (July 2015). Assessing dominance hierarchies throughout development in socially-housed rats. 8th annual Rhode Island Summer Undergraduate Research Fellows (SURF) Conference, Kingston, RI.

## AWARDS & GRANTS

<b>NINDS Early-Career Rigor Champions Prize</b> Co-PI (\$10,000)	<b>July 2025</b>
<b>Travel grant</b> Northeastern University PhD Network (\$500)	<b>March 2025</b>
<b>Travel grant</b> Northeastern University PhD Network (\$500)	<b>March 2024</b>

<b>Travel grant</b> <i>Northeastern University College of Science (\$290)</i>	<b>March 2024</b>
<b>IDEA Networks of Biomedical Research Excellence grant</b> <i>Providence College (\$4,500)</i>	<b>June 2016</b>
<b>IDEA Networks of Biomedical Research Excellence grant</b> <i>Providence College (\$4,500)</i>	<b>June 2015</b>

## AWARDS

<b>NINDS Early-Career Rigor Champions Prize</b>	<b>2025</b>
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## SOCIETIES

<b>Organization for Human Brain Mapping</b>	<b>2025</b>
<b>Cognitive Neuroscience Society</b>	<b>2024</b>
<b>Society for Psychophysiological Research =</b>	<b>2023</b>

## LEADERSHIP & SERVICE

### ACADEMIC EVENT LEADERSHIP

- **Industry Career Panel – Lead Organizer** 2025
- **Brainhack Boston – Lead Organizer** 2025
- **Brainhack Boston: Northeastern University (NEU) – Organizer** 2023-2024
- **Joint meeting of the IASLab (NEU) and NIV Lab (Princeton) – Organizer** 2022
- **IASLab Social Committee (NEU) – Organizer** 2020-2023

### GRADUATE PROGRAM & DEPARTMENTAL SERVICE

- **Northeastern University Community Liaisons for Education Using STEM (NUCLEUS) – Volunteer** 2025
- **Connected Science Community Peer Mentorship Program (NEU) – Volunteer** 2024
- **Graduate Student Mentoring Program (NEU) – Volunteer** 2024
- **Interview Weekend for Prospective Psychology PhD Students (NEU) – Volunteer** 2020-2025

### PROFESSIONAL & OUTREACH ACTIVITIES

- **Careers in Neuroscience (Providence College) – Panelist** 2023
- **Young Professional Group (Massachusetts General Hospital) – Volunteer** 2019-2020
- **Tutoring Plus of Cambridge – STEM Tutor** 2018-2020

### GLOBAL SERVICE

- **CARE Team Mental Health Peer Advisor (Danish Institute for Study Abroad) – Volunteer** 2017-2018
- **Refugee Action (Danish Red Cross) – Volunteer** 2017-2018

### UNDERGRADUATE SERVICE

- **Class Representative (Danish Institute for Study Abroad) – Volunteer** 2016
- **Psi Chi Psychology Mentor Program (Providence College) – Volunteer** 2016-2017
- **Admission Ambassador (Providence College) – Volunteer** 2013-2017

## SKILLS

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**Programming languages** (*intermediate*): R, Python (Nilearn, Nipype), Bash, Linux command-line (shell scripting)

**Data analysis** (*intermediate*): Jupyter Notebooks, High-performance computing systems (SLURM, GPU computing, parallel programming)

**Data processing** (*intermediate*): fMRIPrep (FSL, ANTs, FreeSurfer, AFNI), Docker, Singularity

**Database management** (*basic*): RedCap

**Data Visualization** (*intermediate*): Matplotlib, ggplot2

**Systems** (*basic*): Linux, MAC OS, Windows

**Software** (*intermediate*): RStudio, Visual Studio Code, Atom, Mango, FSLEyes, SPSS

**Visual art** (*advanced*): Photoshop, Adobe Illustrator, Keynote

## REFERENCES

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**Stephanie Noble, PhD**

[s.noble@northeastern.edu](mailto:s.noble@northeastern.edu)

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Department of Psychology, Northeastern University, Boston, MA, 02115

**Ajay Satpute, PhD**

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