KYLE CAHILL

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PROFESSIONAL SUMMARY

Physics Ph.D. candidate at Georgia State University specializing in neurophysics and brain connectivity. Proficient in advanced neuroimaging techniques (MRI, EEG) and computational modeling, with expertise in studying structural and functional brain connectivity, neural network dynamics, and their relationship to cognitive and behavioral metrics. Published in *Brain Sciences* and presenter at OHBM 2023. Actively seeking a postdoctoral position to investigate brain network dynamics, structural and functional plasticity, and how network topology underpins cognitive processes, learning, and neural adaptation.

EDUCATION

Ph.D. in Physics *(Expected Graduation: Spring 2025)*
Georgia State University, Atlanta, GA

M.Sc. in Physics *(2024)*
Georgia State University, Atlanta, GA

B.Sc. in Physics *(2018)*
Florida International University, Miami, FL

B.Sc. in Biology *(2015)*
Nova Southeastern University, Fort Lauderdale, FL

RESEARCH EXPERIENCE

Neurophysics Lab, Georgia State University *(August 2019–Present)*
PhD Candidate, Physics

- Conducted **structural and functional MRI connectivity analysis** to study the long-term neuroplastic effects of action video game playing, examining their impact on improved response times.
- Developed E-Prime script and SPM analysis for investigating creativity and flow in expert jazz musicians.
- Developed PsychoPy stimulus for EEG experiment for moving-dots decision-making and attention tasks
- Enhanced EEG data analysis scripts in MATLAB using synchro-squeezed wavelet transform, improving frequency resolution by 3x.
- Presented research at the **Organization for Human Brain Mapping (OHBM) 2023** conference.
- Certified in **CITI Human Subjects Research (HSR)**.

Neuroinformatics and Brain Connectivity Lab, Florida International University *(August 2016–August 2018)*

Undergraduate Research Assistant

- Contributed to fMRI research design and analysis, focusing on brain network connectivity.
- Annotated and classified neuroimaging literature for the **BrainMap** database, following specific research guidelines.

Antibiotic Resistance in a Periodic Environment, Nova Southeastern University *(August 2014–May 2015)*
Research Assistant

- Investigated antibiotic resistance in E. coli exposed to periodic intervals of canamycin.
- Awarded **Third Place** at the **Undergraduate Student Symposium (2015)** for poster presentation.

Aerosol Pollution from Cruise Ship Emissions, Nova Southeastern University *(January 2014–August 2014)*
Research Assistant

- Analyzed air quality data related to cruise ship emissions and other pollution sources in South Florida.
- Contributed to research that won **Second Place** at the **Undergraduate Student Symposium (2014)**.

PUBLICATIONS

- Cahill, K., Jordan, T., Dhamala, M. (2024). *Connectivity in the Dorsal Visual Stream Is Enhanced in Action Video Game Players*. **Brain Sciences**, 14(12), 1206. DOI: 10.3390/brainsci14121206

TEACHING EXPERIENCE

Teaching Assistant, Georgia State University *(2019–Present)*

- Taught 18 credit hours of Physics I and II labs, including lectures, student assistance, and grading lab reports.
- Awarded **Teaching Assistant of the Year (2022)** for excellence in teaching and student support.

Teaching Assistant, Florida International University *(2016–2018)*

- Assisted in teaching physics lab courses, providing guidance during experiments and grading assignments.

SAT/ACT Tutor, SATPG (West Palm Beach, FL) *(March 2016–October 2016)*

- Provided one-on-one tutoring for SAT/ACT prep and Calculus, tracking student progress with detailed score reports.

TECHNICAL SKILLS

Programming: Python, MATLAB, E-Prime, PsychoPy
Neuroimaging & Analysis Tools: DSI-Studio, AFNI, FSL, SPM, MRICRON, MICROGL, GIFT, CONN, Brain Connectivity Toolbox, BASCO, BrainNet Viewer, xjView
Other Tools: Mathematica, Excel, Word, PowerPoint, LaTeX, Inkscape

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ACADEMIC & PROFESSIONAL SOCIETIES

- **Brains & Behavior Fellow** *(2020–Present)*
  The Neuroscience Institute at Georgia State University
  Fellowship program for graduate students whose research contributes to neuroscience.

LEADERSHIP EXPERIENCE

Physics Graduate Student Association, Georgia State University *(2019–2024)*

- **President** *(2022–2023)*: Increased operating budget by $2750, organized academic and social events, and ensured organizational stability.
- **Secretary** *(2019–2021)*: Documented meeting minutes, coordinated communication between members and faculty.
- **Physics PALS Liaison** *(2023–2024)*: Re-established the department's peer mentorship program.

Society of Physics Students, Nova Southeastern University *(2014–2015)*

- **President**: Revitalized the club, expanding membership and improving administrative functions.
- Organized events, including outreach activities and networking opportunities for members.

Phi Gamma Delta, Nu Upsilon Chapter *(2012–2015)*

- **Founding Father & Leadership Roles**: Played a key role in the chapter's establishment and growth.
  - As **Recording Secretary**, organized internal communications and created the chapter's first website.
  - As **Parliamentarian**, oversaw meetings and ensured adherence to organizational rules.
  - **Corresponding Secretary**: Organized the chapter's external communications and created the first graduate newsletter. Oversaw Graduate Relations, Social, and Inter-Fraternity Council committees. Organized events.
  - Organized philanthropic and community service events.

Interfraternity Council, Nova Southeastern University *(2013–2015)*

- **Treasurer**: Expanded budget from $150 to over $1000, supporting events and activities.
- **Secretary**: Maintained accurate records and minutes for all meetings.

REFERENCES: Available upon request.