

KENDRA K. NONEMAN

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EDUCATION

Carnegie Mellon University

2020 -

Ph.D. Program in Neural Computation

Neuroscience Institute, Center for the Neural Basis of Cognition

(Advisor: J. Patrick Mayo)

Boise State University

2016 - 2020

B.S. in Materials Science and Engineering, *magna cum laude*

Minor in Applied Mathematics, Emphasis in Scientific Computing

Top Ten Scholar, Mountain West Scholar Athlete of the Year

(Advisor: Eric Jankowski)

RESEARCH EXPERIENCE

Visual-Motor Neuroscience Laboratory, University of Pittsburgh

Feb 2021 -

Graduate Research Assistant

(Advisor: J. Patrick Mayo)

- Conducting research on the cortical representations underlying eye movements and visual perception, using electrophysiology, eye tracking, and machine learning tools.
- Helped design and construct the lab's recording and data collection setup.
- Developed code for data pipelines, high-performance computing, and analysis, and established our lab's presence on GitHub.
- Collaborated with clinical research groups and other labs to extract eye traces from videos of patients and assisted them in using eye-tracking glasses.
- Manuscript as first author in progress and posters presented at 4 conferences.

Neuroscience Institute, Carnegie Mellon University

Aug 2020 - Jan 2021

Graduate Rotation Student

(Advisors: Matthew Smith, Byron Yu)

- Conducted research on the voluntary control of internal states via brain-computer interfaces, using invasive recordings and dimensionality reduction methods.

Computational Materials Lab, Boise State University

Aug 2015 - May 2020

Undergraduate Research Assistant

(Advisor: Eric Jankowski)

- Conducted research on the self-assembly of small-molecule semiconductors and their application to organic photovoltaics on the largest academic supercomputer in US.
- Manuscript as first author published and poster presented at major conference.

CoAx Lab, Carnegie Mellon University
Research Fellow, Program in Neural Computation
(Advisors: Timothy Verstynen, Jon Rubin)

Jun 2019 - Aug 2019

- Investigated how circuit-level properties and dopaminergic plasticity of cortico-basal-ganglia-thalamic (CBGT) networks influences decision-making.
- Manuscript published and poster presented at internal conference.

INDUSTRY EXPERIENCE

Applied Materials, Micron Semiconductor Division
Process Engineering and Data Analytics Intern
(Mentors: Kyle Hancock, Ian)

May 2018 - Aug 2018

- Created software (SQL, Tableau) framework for big data processing pipeline, matching performance metrics for chemical vapor deposition and reactive ion etch hardware.
- Assisted with onboarding and debugging new chambers at multiple fabrication facilities.

NASA Ames Research Center, Astrophysics Branch
Computational Quantum Astrochemistry Intern
(Mentors: Partha Bera, Tim)

Jun 2017 - Aug 2017

- Utilized state-of-the-art quantum chemistry methods (Density-Functional theory and Coupled Cluster theory) and HPC clusters to analyze spectra data for astrophysical molecules.
- Manuscript as 2nd author published and poster presented at NASA-wide conference.

National Center for Supercomputing Applications, Blue Waters
High-Performance Computing Intern
University of Illinois in Urbana-Champaign, IL

May 2016 - May 2017

- Invited to an intensive two-week Petascale Institute at the University of Illinois in Urbana-Champaign, where specific emphasis was placed on GPU parallelization
- Received 16,000 GPU-hour allocation on Blue Waters Supercomputer for my work at Boise State, resulting in a first author publication

PUBLICATIONS

Peer-Reviewed Journal Articles

- [1] “Gaze decoding with sensory and motor cortical activity.” **KK Noneman**, JP Mayo. *Proceedings of the 2024 Symposium on Eye Tracking Research and Applications*, <https://doi.org/10.1145/3649902.3655655> (2024).
- [2] “Energy Landscape, and Structural and Spectroscopic Characterization of Diazirine and Its Cyclic Isomers.” PP Bera, **KK Noneman**, TJ Lee. *Journal of Physical Chemistry A*, <https://doi.org/10.1021/acs.jpca.2c01444> (2022).
- [3] “Molecular simulations for understanding the stabilization of fullerenes in water.” **K Noneman**, C Muhich, K Ausman, M Henry, E Jankowski. *Journal of Computational Science Education*, <https://doi.org/10.22369/issn.2153-4136/12/1/6> (2021).
- [4] “The credit assignment problem in cortico-basal ganglia-thalamic networks: A review, a problem and a possible solution.” JE Rubin, C Vich, M Clapp, **K Noneman**, T Verstynen. *European Journal of Neuroscience*, <https://doi.org/10.1111/ejn.14745> (2020).

- [5] “Perspective on Coarse-Graining, Cognitive Load, and Materials Simulation.” E Jankowski, N Ellyson, JW Fothergill, MM Henry, **KK Noneman**, et al. *Computational Materials Science*, <https://doi.org/10.1016/j.commatsci.2019.109129> (2020).

Conference Presentations

- [1] “Gaze decoding with sensory and motor cortical activity”, ACM Symposium on Eye Tracking Research and Applications, Poster, Glasgow, UK (2024).
- [2] “Decoding Smooth Pursuit Eye Movements from Area MT and FEF Neuronal Responses”, Gordon Research Conference on Eye Movements, Poster, Mount Holyoke, MA (2023).
- [3] “Modulation of frontal eye field neuronal activity during saccades and smooth pursuit”, Center for Visual Science Symposium on Active Vision, Poster, Rochester, NY (2022).
- [4] “Neuronal populations trajectories during smooth pursuit and motion perturbations in area MT”, Society for Neuroscience Annual Meeting, Poster, Chicago, IL (2021).
- [5] “Simulating the Effects of Dopaminergic Plasticity on Cortico-Basal-Ganglia-Thalamic (CBGT) Networks”, Center for Neural Basis of Cognition (CNBC), Poster, Pittsburgh, PA (2019).
- [6] “Characterization of Diazirine and its Isomers”, NASA Ames Research Center (Space Science and Astrobiology), Poster, Mountain View, CA (2017).
- [7] “Molecular Simulations of Fullerene Stabilization in Water by Fullerene-Oxides”, American Institute of Chemical Engineering (AIChE) Annual Meeting, Poster, Minneapolis, MN (2017).

SERVICE AND LEADERSHIP

President of Executive Board Neuroscience Institute Student Organization Carnegie Mellon University, PA	2022 - 2023
Co-chair, Colloquium Committee Center for the Neural Basis of Cognition (CNBC) Carnegie Mellon University, PA	2021 - 2023
Department Representative Graduate Student Assembly (GSA) Carnegie Mellon University, PA	2021 - 2022
Chapter President Tau Beta Pi Engineering Honor Society Boise State University - ID Gamma Chapter	2018 - 2020
Representative of Student-Athlete Advisory Committee (SAAC) NCAA Division I Track and Field Boise State University, ID	2018 - 2020
Awards Committee Chair and Host Tau Beta Pi National Convention Ohio State University, OH	2019

RECOGNITION

Awards & Honors

- Neuroscience Institute Student Community Service Award (2024)
- Center for Visual Science Travel Fellowship (2022)
- NCAA Division III National Athlete of the Week (2022)

- University Athletic Association Athlete of the Week (2022)
- SfN Trainee Professional Development Award (2021)
- Mountain West Scholar Athlete of the Year (2020)
- Boise State Athletics Academic Excellence Award (2020)
- Boise State Top Ten Scholar (2020)
- Boise State Graduating Student Leader Award (2020)
- Tau Beta Pi Fellowship Award (2020)
- AIST Northwest Member Chapter Scholarship (2019)
- Tau Beta Pi Laureate Award (2019)
- Tau Beta Pi Scholarship (2019)
- University Space Research Association Honorable Mention (2019)
- Mountain West All-Academic Athlete (2017-2020)
- Boise State High Honors Dean's List (2016-2020)
- American Council of Engineering Companies Scholarship (2018)
- University Space Research Association Honorable Mention (2018)
- Marines' Memorial Association Scholarship (2018)
- Idaho NASA Space Grant Consortium Scholarship (2017)
- Engineering Department: Going-the-Extra-Mile Award (2017)
- Boise State Presidential Scholarship (2016)
- Idaho Governor's Cup Scholarship (2016)
- Society of Women Engineers Northwest ID Scholarship (2016)

Feature Articles

- "Division III top-ranked thrower and neuroscientist, Kendra Noneman, heads to nationals." *Carnegie Mellon University Features* (2022).
- "Boise State's Noneman honored as Mountain West Female Scholar-Athlete of the Year." *Mountain West Athlete Awards* (2020).
- "Boise State Alumni Association honors Top 10 Scholars at virtual May 7 event." *Boise State News* (2020).
- "Materials science and engineering athlete recognized for excellence." *Boise State News* (2019).
- "Tau Beta Pi Announces 2019 Laureates." *Tau Beta Pi Engineering Honor Society Newsletter* (2019).
- "The Journey from High School Intern to Undergraduate Researcher." *Boise State News* (2016).
- "Eagle teen jump-starts engineering career." *Idaho Education News* (2016).

OTHER ACTIVITIES

Teaching

- Teaching Assistant, Foundations of the Neural Basis of Cognition taught by Patrick Mayo (2024).
- Brain-Bots Course Co-Instructor, Leonard Gelfand Center for Service Learning and Outreach (2023).
- Teaching Assistant, Neural Engineering Laboratory taught by Douglas Weber and Matthew Smith (2023).

Professional

- Student Host and visit organizer, CNBC Colloquium Speaker Series: Konrad Kording (2024).
- Student Host and visit organizer, CNBC Colloquium Speaker Series: Eli Merriam (2024).
- Student Representative, Faculty Search Committee (2023).
- Student Host and visit organizer, CNBC Colloquium Speaker Series: David Sussillo (2022).
- Student, Neuromatch Academy Computational Neuroscience course (2021).
- Volunteer and Mentor, CMU Graduate Student Interviews (2021).
- Representative and Chair, Tau Beta Pi National Convention (2019).
- Attendee, Boise State Women in Leadership Luncheon (2019).
- Attendee, Idaho National Laboratory Luncheon (2019).
- Guest Speaker, BSU Engineering Living-Learning Community Orientation (2018).
- Attendee, BSU Athletics Varsity-B Mixer (2018).
- Team Lead, BSU Virtually-Integrated Projects (2018).
- Assistant, Software Carpentry Workshop (2018).
- Attendee, BSU Athletics Varsity-B Mixer (2017).
- Guest Speaker, Idaho Science and Aerospace Scholars (2017).

Community Outreach

- Career Panelist & Volunteer, Psychology and Neuroscience SciTech Days (2024).
- Volunteer Instructor, Rehabilitation and Neural Engineering Laboratory Adult Coding Class (2023).
- Career Panelist & Volunteer, Health and Fitness SciTech Days (2023).
- Category Judge, Pittsburgh Science Fair (2022).
- Volunteer, BSU BroncoBold Mental Health Initiative (2019).
- Volunteer, Tau Beta Pi "Rake Up Boise" Event (2019).
- Volunteer, Bronco Athletics Association Appreciation Day (2019).
- Mentor, Ada County Juvenile Detention Center (2019).
- Volunteer, Pittsburgh Pride Parade (2019).
- Coordinator, Boise State "STEM on the Blue Event" (2019).
- Volunteer, BSU Athletics Endowment Event (2018).
- Volunteer, San Francisco Pride Parade Volunteer (2017).
- Volunteer, Make a Wish Foundation: "Serving up Wishes Event" (2016).

Athletics

- Assistant Coach, Carnegie Mellon Track and Field (2022 - 2023).
- Hammer Thrower (School Record, National Runner-Up), Carnegie Mellon (2021 - 2022).
- Hammer Thrower & Team Manager, Boise State Track and Field (2016 - 2020).