

## Summary

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I am an early career researcher interested in how the analysis of multimodal data (EEG, pupillometry, behavioral) can explain and further our understanding of human behavior. I am particularly interested in perception and cognition, and reward-prediction. Proficient in developing pipelines for analysis in R and MATLAB, with multiple years of experience assisting with human-subjects research, including clinical populations.

## Education

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**Bachelor of Science, Psychology** *Sept. 2023–Aug. 2025*  
*University of Minnesota, Minneapolis, Minnesota*

- Coursework emphasized cognitive science, data analysis, programming concepts, and experimental design

*Gustavus Adolphus College, St. Peter, Minnesota* *Sept. 2022–May 2023*

- Men's Varsity Swim & Dive Competitor, MIAC Conference

## Research Coursework

### *Selected Courses*

- R & Reproducible Research
- Regression & Correlated Data
- Psychology of Hearing
- Human Physiology
- Psychology of Attention
- Latin I & II

- **Honors Research Practicum (PSY4994V)** *Spring Semester 2025*

- o Practicum in thesis design, professional writing, and sharing research with the scientific community.
- o Developed an independent research project extending on prior experience with multimodal data collection and analysis.

- **Dean's First-Year Research and Creative Scholars (CLA1052)** *Spring Semester 2024*

- o Scholarship awarded based on admissions application for demonstrated research potential.
- o Trained extensively in EEG setup and data collection for auditory perception experiments.
- o Gained experience developing and delivering research presentations.

- **Research Apprenticeship (PSY290)** *January Term–Spring 2023*

- o Mentored by faculty on designing an experiment investigating entomophobic responses to *Gromphadorhina portentosa* (Madagascar hissing cockroach); in collaboration with Gustavus Biology Department.
- o Received training on human-subjects research ethics, experiment piloting, animal handling procedures, GCP; assisted with senior thesis behavioral data collection for Dr. Hecht's students.

## Employment

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**Research Professional** *November 2025–Present*

**Research Assistant** *May 2024–August 2025*

*Auditory Perception & Cognition Lab, UMN Psychology Department (PI: Dr. Andrew Oxenham)*

- Assisted with NIH funded research investigating human speech and speech-in-speech perception via EEG and behavioral experiments.
- Recruited MCI patients through MHealth Fairview for EEG experiments.
- Processed, analyzed, and visualized multimodal datasets in R and MATLAB; applied GAMMs and mixed-effects modeling.
- Prepared manuscripts for publication.

**Research Assistant** *May 2025–October 2025*

*Noel Lab, UMN Neuroscience Department (PI: Dr. Jean-Paul Noel)*

- Designed, recruited and piloted human participants (n = 11) independently in an experiment investigating visual encoding and reward prediction, managed data collection and preprocessing.
- Built analysis pipelines in R and MATLAB using signal filtering; synchronizing data.
- Organized and implemented lab-wide human participant database for HIPAA and IRB compliance.

### Research Assistant

May 2024–August 2024

Animal Communication Lab, UMN Ecology, Evolution, and Behavior (PI: Dr. Mark Bee)

- Supported animal research on acoustic communication in *Hyla chrysoscelis* and *Hyla versicolor* tree frogs; collected species in the field.
- Conducted animal handling, surgical preparation for craniotomies, and post-surgical care facilitating brain tissue sample collection in accordance with IACUC protocols.

### Mental Health Advocate II

May 2023–August 2024

Supportive Living Solutions Whittier Campus, Minneapolis, Minnesota

- Coordinated care for 40+ residents with diverse behavioral and mental health needs with a multidisciplinary clinical team.
- Audited and managed medication systems to ensure full compliance with state and federal regulations.
- Implemented improvements to documentation accuracy and continuity of care via tracking system.

### Lead Copy Editor

September 2022–June 2023

The Gustavian Weekly, St. Peter, Minnesota

- Managed team of three copy editors in reviewing, editing, and publishing a weekly newspaper.
- Collected and managed weekly pickup from publisher and distribution of papers across campus.
- Collaborated with departments at *The Gustavian* for smooth organizational running.

## Skills & Certifications

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### Programming & Tools

- **Proficient:** MATLAB, R, Markdown, Git/GitHub, MS Office, WindowsOS, MacOS
- **R/RStudio:** statistical modeling (GAMMs, linear-mixed-effects, regression, non-parametric statistics), data wrangling, data visualization (*ggplot*, *mgcv*, *itsadug*, *lme4*, *tidyverse*)
- **Familiar:** Python, HTML,  $\LaTeX$ , Linux OS

- HIPAA, Information Security Training

- MoCA (Montreal Cognitive Assessment) Test Administration Certification for Mild Cognitive Impairment

### Lab & Technical Skills

- EEG Data Collection and Post-Processing (BioSemi; EEGLab)

### Certifications

- Fairview Non-employed Research Staff (human subjects research through MHealth Fairview)
- Collaborative Institutional Training Initiative (CITI) Training (data practices, research privacy & ethics)

- Pupillometry (Tobii Pro Spectrum)

- Audiometric Threshold Testing

- Surgical Support & Animal Handling

- Laboratory Safety & Data Protocols, GCP

## Publications, Posters, and Presentations

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### Publications

1. Chisholm, B. M., Johns, M. A., & Mesik, J. *Fatigue Does Not Interact with Experimental Manipulation in a Speech-in-Noise Listening Effort Task*. (Manuscript in preparation).

### Posters and Presentations

1. Chisholm, B.M., Johns, M. A., & Mesik, J. (2026, April). *Assessing the Effect of Pupillometric Fatigue on Task-Evoked Responses in a Listening Effort Paradigm*. [Poster Presentation]. Center for Applied & Translational Sensory Science Spring Research Day, University of Minnesota, Minneapolis, MN.

2. Chisholm, B. M., & Mesik, J. (2025, May). *Assessing the Effect of Pupillometric Fatigue on Tasked-evoked Responses in a Listening Effort Paradigm*. [Poster Presentation]. 188th Meeting of the Acoustical Society of America, New Orleans, LA.
3. Auditory Perception & Cognition Lab (2025, January). Spotlight Science: The Science of Sound. [Community Presentation]. Bell Museum, St. Paul, MN.
4. Chisholm, B. M., & Hecht, L. (2023, May). *Impact of a Cockroach in the Rubber Hand Illusion*. [Oral Presentation]. Spring Research Day, Gustavus Adolphus College, St. Peter, MN.

## Service & Leadership

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### Reviewing

ad-hoc reviewer, *Minnesota Undergraduate Research & Academic Journal* (2024-2025)

### Other Professional Service

#### Committee Lead, AI in Research Task Force

*Feb 2025–Present*

*UMN Department of Psychology*

- Leading a departmental task force charged with establishing ethical guidelines for Generative AI use in the psychology departments research workflow.
- Authoring group report on data privacy, mentorship, and AI-assisted research.

#### Academic Integrity Matters (AIM) Program Volunteer

*Jan 2026–Present*

*Office of Community Standards, UMN Twin-Cities*

- Assisted with facilitating discussions with students who violated the Student Code of Conduct; program aimed towards restorative justice.
- Represented University Community Members, tasked with promoting academic integrity by sharing perspectives on the impact of scholastic dishonesty beyond the classroom.

#### Eagle Scout, Boy Scouts of America

*November 2021*

*Northern Star Council*

- Coordinated a community service project to provide refurbished bicycles to underprivileged youth in the Big Brothers Big Sisters style program.
- Managed logistics and repair plans for volunteers from our Troop to repair 20+ bikes for donation.

## Honors, Awards, and Scholarships

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College of Liberal Arts Dean's List (Fall 2024)

*University of Minnesota*

1st Place, R Data Science Competition (October 2024)

*Psi Chi International Honor Society*

Undergraduate Research Opportunities Project (Summer 2024)

*University of Minnesota*

Dean's First-Year Research & Creative Scholars, CLA1052 (Spring 2024)

*University of Minnesota*

Director's Residential Service Award (February 2024)

*Supportive Living Solutions*

Presidents Faculty-Student Collaboration Grant (Summer 2023)

*Gustavus Adolphus College*

Dean's List (Spring 2023)

*Gustavus Adolphus College*

Swanson-Holcomb Undergraduate Research Award (Spring 2023)

*Gustavus Adolphus College*

## Science Outreach & Communication

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#### Community Presentation, Orchestra Hall: Music and the Mind

*Feb. 15, 2026*

*UMN Auditory Perception & Cognition Lab, Minneapolis, MN*

- Provided information on auditory science and research for Cochlear Implant (CI) users and broader community during a chamber concert event.
- Spoke on impact of music on health, discussed current research regarding pitch and hearing loss.

**Community Presentation, Spotlight Science: The Science of Sound**

*Jan. 18, 2025*

*Bell Museum, St. Paul, MN*

- Assisted with interactive demonstrations explaining the auditory system to the general public.

**Guest Speaker, UMN CLA 1052**

*Fall 2025*

*University of Minnesota, Minneapolis, MN*

- Panelled on undergraduate research pathways and opportunities for engagement; within and beyond the psychology department.