

# Benjamin Masters

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## Education

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### University of Waterloo

Ph.D., Biomedical Engineering 90.7 GPA | Expected 2028  
Thesis topic: Understanding effortful listening in conversation

M.A.Sc, Systems Design Engineering 89.8 GPA | 2024  
Thesis: Talker sensitivity to turn-taking in conversation

Certificate in University Teaching Expected 2026  
Fundamentals of University Teaching Program 2025

### Purdue University

B.S.E., Acoustical Engineering 3.74 GPA | 2022

## Research Appointments

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### University of Waterloo

Graduate Student Researcher, Hearing Lab Waterloo, ON  
Sept. 2022 - Present  
- Developing and validating acoustical, behavioral, and physiological measures of effort during communicative interaction

### Purdue University

Undergraduate Researcher, Experimental Amplification Research Lab West Lafayette, IN  
Aug. 2021 - May 2022  
- Evaluated and improved the acoustic directional performance of an open-source hearing aid platform

## Teaching Appointments

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### University of Waterloo

Sessional Instruction Waterloo, ON  
- BME 252 - Linear Systems & Signals Spring 2025

### Teaching Assistantships

- SYDE 552 - Computational Neuroscience Winter 2025  
- SYDE/MTE 252 - Linear Systems & Signals Spring & Fall 2023, Spring & Fall 2024  
- SYDE 556/750 - Simulating Neurobiological Systems Fall 2023  
- BME 101 - Communication in Biomedical Engineering Fall 2022

### Purdue University

Teaching Assistantships West Lafayette, IN  
- ME 413 - Noise Control Spring 2022

## Industry Experience

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### Bose Corporation

Acoustic Engineer Intern Framingham, MA  
June 2022 - Aug. 2022  
- Designed an algorithm to acoustically detect air leaks from loudspeakers during production verification testing.

### Starkey Hearing Technologies

Acoustic Engineer Intern Eden Prairie, MN  
May 2021 - Aug. 2021  
- Developed vibration sensitivity testing procedures for the electroacoustic transducers used in hearing aids.

## Awards

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- International Symposium on Auditory and Audiological Research Scholarship (2025)
- 1<sup>st</sup> Place - International Student Challenge Problem in Signal Processing - Acoustical Society of America (2024)
- International Masters Award of Excellence - University of Waterloo (2022-2024)
- Canadian Acoustical Association Student Travel Award (2024)
- 1<sup>st</sup> Place - International Student Challenge Problem in Signal Processing - Acoustical Society of America (2023)

## Service

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- Student Council Representative - Technical Committee on Signal Processing in Acoustics - Acoustical Society of America (2025-2027)
- Member - Systems Design/Biomedical Engineering Teaching Assistant Spaces Committee (2024-2025)
- Treasurer and Workshop Host - Purdue Student Chapters of the Acoustical Society of America and Audio Engineering Society (2020-2022)
- Vice-President and Treasurer - Purdue University Multidisciplinary Engineering Student Society (2019-2021)

## Scholarship

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### Journal Articles

- Masters, B., MacDonald, E.N. (Submitted). "Variable delay affects conversational turn-taking behavior in the presence of background noise"
- Masters, B., Aliakbaryhosseinabadi, S., Wendt, D., MacDonald, E.N. (2025). "Pupil responses during interactive conversation" Trends in Hearing

### Conference Presentations

- Masters, B., Shiell, M., Wendt, D., MacDonald, E.N. (2025). "The effects of hearing loss on pupil responses in conversation" International Symposium on Auditory and Audiological Research, Nyborg, Denmark
- Masters, B., Shiell, M., Wendt, D., MacDonald, E.N. (2025). "Understanding effortful listening in conversation" Workshop in Communication in Hearing Science 2025, Lynge, Denmark
- Masters, B., Shiell, M., Wendt, D., MacDonald, E.N. (2025). "The effects of hearing loss on pupil responses in conversation" Symposium on Aging Research, Waterloo, Ontario, Canada
  - *Research Institute for Aging's Most Innovative Research Award*
- Masters, B., Aliakbaryhosseinabadi, S., Wendt, D., MacDonald, E.N. (2024). "Analysis of physiological measures around conversational state changes" Acoustical Society of America 186/Acoustics Week in Canada 2024, Ottawa, Ontario, Canada
- Masters, B., MacDonald, E.N. (2024). "The effects of delay on task-based interactive conversation" Acoustical Society of America 186/Acoustics Week in Canada 2024, Ottawa, Ontario, Canada
- Masters, B., Alexander, J.M. (2021). "Directionality Characteristics of the Tympan Open-Source Hearing Aid and Earpieces" Acoustical Society of America 181, Seattle, Washington

### Seminars & Invited Talks

- Masters, B. (2024) "Talker Sensitivity to Turn-Taking in Conversation", Eriksholm Research Centre
- Masters, B. (2024) "Talker Sensitivity to Turn-Taking in Conversation", Technical University of Denmark

### Open Datasets

- Masters, B., Aliakbaryhosseinabadi, S., Wendt, D., MacDonald, E.N. (2025) "Replication Data for Pupil responses during interactive conversation" <https://doi.org/10.5683/SP3/LAYQ3J>, Borealis, V1