

Tyler P. Morris

(901)-258-9854 | tpmorris13@gmail.com | Knoxville, TN 37916

EDUCATION

The University of Tennessee

Knoxville, TN

Bachelor of Science in Biomedical Engineering

August 2018 - May 2022

Major: *Biomedical Engineering, Cook Grand Honors*

Masters of Science in Biomedical Engineering

August 2022 - May 2024

Doctor of Philosophy in Biomedical Engineering

August 2022 - Present

RESEARCH EXPERIENCE

Graduate Research Assistant

June 2022 – Present

Ph.D. student under Dr. Xiaopeng Zhao

- Working on developing social robots to care for older adults with Alzheimer's disease and other related dementias
- Completed a literature review about the current state of social robots and their future directions
- Continuing to work on a project to implement music intervention with social robotics to provide additional care for persons with Alzheimer's disease and other related dementia
- Continuing to work on a project that uses retrieval-augmented generative AI to teach novice dementia caregivers about issues they may be having and provide additional support
- Continuing to work on a project that combines AI, virtual reality technology and music intervention for dementia care

Undergraduate Researcher

August 2020 – May 2022

Digital Hearing Aid Project under Dr. Jeff Reinbolt

- Used MATLAB to design a digital hearing aid that could filter music at varying frequencies
- The code could reduce noise, shape frequencies to fit certain hearing loss parameters, and actively control amplitude to ensure the sound was neither too loud nor too quiet

PEER REVIEWED PUBLICATIONS

- **T. Morris et al.**, "Using social robots and AI to perform genetic risk assessment for cancer," *Proceedings of the AAAI Symposium Series*, vol. 4, no. 1, pp. 359–366, Nov. 2024. doi:10.1609/aaais.v4i1.31817
- **T. Morris**, S. Walker, L. V. Holder, E. Vaughan, D. V. Petrovsky, S. Swaminathan, X. Zhao. "Enhancing Dementia Care with Social Robot-Guided Music Interventions," 9th ACM/IEEE International Conference on Connected Health: Applications, Systems, and Engineering Technologies(CHASE '24), 2024.
- **T. Morris**, M. Wang, Y. Li, S. Liu, S. Li, X. Zhao, "Awareness and Acceptance of Emerging Technology and Quadruped Robots in Dementia Care: A Survey Study," *Artificial Intelligence for Human-Robot Interaction (AI-HRI) 2023*, 2023.
- **Tyler Morris**, Darina V. Petrovsky, Sai Swaminathan, and Xiaopeng Zhao. 2024. Design of a Music Intervention System Using Social Robotics for Cognitive Enhancement. In *Proceedings of the 8th ACM/IEEE International Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE '23)*. Association for Computing Machinery, New York, NY, USA, 185–186. <https://doi.org/10.1145/3580252.3589428>
- X. Su, **T. Morris**, S. Simpson, J. Blackburn, L. Macdougall, and X. Zhao, "A Systematic Review on Machine Learning Methods for Dementia Care: Problems, Data, and Features," *Smart Health*, 2022.
- **T. Morris**, H. Dodge, S. Cerel-Suhl, and X. Zhao, "Social Robots to Support Assisted Living for Persons with Alzheimer's and Related Dementias," *International Conference of Social Robotics 2022*, 2022.

CONFERENCE PRESENTATIONS

- **6th Annual Symposium on Alzheimer's and Dementia** **May, 2025**
 - *An AI-Enhanced Social Robot System to Support Informal Dementia Caregivers* – Poster Presentation
- **a2 National Symposium** **April, 2025**
 - *MUSICARE-VR: An AI-enhanced, Music Intervention in Virtual Reality System for Persons with Dementia* – Poster Presentation
- **Alzheimer's Association International Conference** **July, 2024**
 - *User Perceptions of a Robot-based Music Intervention System for Dementia Care* – Poster Presentation
- **UT Medical Center's 4th Annual Symposium on Alzheimer's and Dementia** **September, 2022**
 - *Social Robots to Support Assisted Living for Persons with Alzheimer's and Related Dementias* – Poster Presentation
- **Exhibition of Undergraduate Research and Creative Achievement (EURECA) 2021** **March, 2021**
 - *Development and Optimization of a Digital Hearing Aid to Increase Music Perception* – Poster Presentation

HONORS AND REWARDS

- Volunteer of Distinction Award for the 2024-2025 academic year
- NSF Student Travel Award for CHASE 2024
- Graduate Student Senate Travel Award for October 2023
- NSF Student Travel Award for CHASE 2023
- Oak Ridge Innovation Institute Graduate Fellowship, 2022-2023
- Dean's List Award (4 years in a row) – Each academic year from August, 2018 to May, 2022
- 3rd place in Engineering Category at UTK EURECA Competition 2021
- Eagle Scout Rank *Recipient* – May, 2015

RESEARCH GRANTS

- University of Tennessee Tyler Morris (PI) 01/2023-06/2023 \$5,000
Music Intervention for People with Neurological Impairments (MIPNI) Pilot Study
This pilot study aims to test the usability and user perception of the MIPNI system, a music intervention program delivered by a socially assistive robot to enhance wellbeing in people with neurological impairments.
Role: PI

RESEARCH DEMOS

- Big Orange STEM Saturday, University of Tennessee – January 27, 2024
- Patricia Neal Rehabilitation Center Brain Injury Workshop, Knoxville, TN – September 16, 2023
- Big Orange STEM Saturday, University of Tennessee – January 21, 2023
- Aging: A Family Affair Conference, Knoxville, TN, – November 2022
- Engineer's Day at the University of Tennessee – October 27, 2022

PROFESSIONAL AFFILIATIONS

- Cook Grand Challenge Honors *Scholar* (August 2018 – May 2020)
- Chancellor's Honors Program *Member* (August 2019 – May 2022) (Graduated with full honors in May 2022)
- Biomedical Engineering Society *Member* (August 2018 – Present)
- Association for Computing Machinery *Member* (September 2022 – Present)