

AILI TOYLI

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EDUCATION

University of Iowa Iowa City, IA
M.S. Biostatistics, Department of Biostatistics May 2026
Beginning Fall 2026

Michigan Technological University Houghton, MI
B.S. Statistics, Department of Mathematical Sciences April 2026
Minor Public Health
Advisor: Qiuying Sha
Cumulative GPA 4.0

Parkers Prairie High School Parkers Prairie, MN
Valedictorian, High Honor Student May 2023
Cumulative GPA 4.0

RESEARCH EXPERIENCE

Michigan Technological University Houghton, MI
Undergraduate Research Assistant, December 2023 – Present
Laboratory of Medical Imaging and Informatics

- Utilized traditional statistical methods and unsupervised machine learning to identify complex associations between heart and brain health
- Mentored other lab members in cloud computing with large-scale datasets on UK Biobank and All of Us platforms
- Developed research plan in conjunction with graduate students and faculty for causal analysis to identify interventions reducing the risk of Alzheimer's disease

University of Iowa Iowa City, IA
Participant, Iowa Summer Institute in Biostatistics June 2024 – July 2024

- Assessed geographic relationships between breast cancer incidence rates and risk factors across Iowa counties in capstone group project
- Customized provided R scripts to execute geographically weighted and conditional autoregression
- Connected with researchers from the field of biostatistics and learned their methods

WORK EXPERIENCE

Michigan Technological University Houghton, MI

Math Learning Center Coach

August 2024 – Present

- Hold walk-in hours for in algebra, pre-calculus, calculus, statistics, and linear algebra
- Lead weekly one-on-one peer tutoring sessions
- Participate in regular coaching development sessions

Michigan Technological University

Houghton, MI

Grader, Probability (MA3720)

September 2025 – December 2025

- Grade weekly quizzes and exams for upper-level probability course

Michigan Technological University

Houghton, MI

Grader, Calculus III (MA3720)

February 2026 – April 2026

- Grade weekly quizzes and exams for upper-level probability course

PUBLICATIONS

Toyli A, Shaik A, Zhao C, Chen QH, Sha Q, Zhou W. The heart-brain axis: unraveling the interconnections between cardiovascular and Alzheimer's diseases. *Front Cardiovasc Med.* 2025. [PMID: 41367378] [DOI: 10.3389/fcvm.2025.1685461]

Toyli A, Zhao C, Su KJ, Shen H, Deng HW, Chen QH, Sha Q, Zhou W. Phenotypic and Genetic Associations Between Cardiovascular Disease Subtypes and Alzheimer's Disease. *medRxiv.* 2025. [PMID: 40950506] [DOI: 10.1101/2025.08.29.25334750] (*Accepted, awaiting publication*)

Toyli A, Hung GU, Zhao C, Sha Q, Chiu PY, Zhou W. Comparison of Cerebral ECD Perfusion in Patients with Dementia with Lewy Bodies and Parkinson's Disease Dementia. *Nuclear Medicine Communications.* 2024. [PMID: 39711303] [DOI: 10.1101/2024.10.02.24314782]

PRESENTATIONS

“Hierarchical Clustering to Identify Factors Associated with Risk of Cardiovascular Disease and Alzheimer's Disease,” Undergraduate Research and Scholarship Symposium. Michigan Technological University, Houghton, MI, March 2026.

“Statistical Analysis of the Heart-Brain Connection Using Magnetic Resonance Imaging, Clinical Records, and Genetic Markers,” Mathematical Sciences Undergraduate Research Presentation. Michigan Technological University, Houghton, MI, April 2025.

“Statistical Analysis of the Heart-Brain Connection Using Magnetic Resonance Imaging, Clinical Records, and Genetic Markers,” Undergraduate Research and Scholarship Symposium. Michigan Technological University, Houghton, MI, March 2025.

“Undergraduate Research as a Math Student at Michigan Tech,” SURF and URIP Panel Discussion. Michigan Technological University, Houghton, MI, February 2025.

“Comparison of Cerebral ECD Perfusion in Patients with Dementia with Lewy Bodies and Parkinson’s Disease Dementia,” Health Research Institute Student Research Forum. Michigan Technological University, Houghton, MI, November 2024.

“Mapping Breast Cancer Risk Factors in Iowa,” Iowa Summer Research Symposium. University of Iowa, Iowa City, IA, July 2024. <https://www.public-health.uiowa.edu/wp-content/uploads/2024/09/Aili-Lauryn-Leek--research-project.pdf>

HONORS & AWARDS

Michigan Technological University Undergraduate Research Program Grant Recipient	2025-26
Michigan Technological University Statistics Achievement Award	2024-25
Michigan Technological University Undergraduate Research Program Grant Recipient	2024-25
Michigan Technological University Mathematical Excellence Award	2024

REFERENCES

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