# HONGTAO WANG

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## EDUCATION

**University of Pittsburgh** Pittsburgh, PA
M.S., Computer Science Expected April 2025
GPA: 3.59/4
Thesis: *Developing a Domain Specific Language Model Empowered Tool to Support Family Caregivers of Individuals with Alzheimer's Disease and Related Dementias (In Progressing)*
Advisor: Dr. Yong K. Choi & Dr. Xiaowei Jia

**College of Saint Benedict & Saint John's University** Collegeville, MN
B.A., Computer Science December 2022
GPA: 3.75/4
Minor: Japanese

## RESEARCH EXPERIENCE

**University of Pittsburgh** Pittsburgh, PA
*Research Assistant, HexAI Lab* October 2023 – April 2024

- Collaboratively developed and evaluated an ensemble machine learning model to predict 30-day unplanned reoperations post-primary total shoulder arthroplasty, achieving an accuracy of 0.852 and AUC of 0.91.
- Performed comprehensive data analysis on a dataset of 19,055 patients, using advanced statistical methods to uncover key predictors of surgical outcomes.
- Enhanced model transparency and fairness by implementing techniques such as LIME and SHAP, contributing to the technical sections of a peer-reviewed research paper.
- Played a key role in cross-disciplinary team meetings, contributing to methodological decisions and aligning project goals with clinical standards.

**College of Saint Benedict & Saint John's University** Collegeville, MN
*Research Assistant, Department of Computer Science* May 2022 – August 2022

- Engineered interactive software tools to facilitate the visualization of core data structures, enhancing learning experiences for students in introductory computer science courses.
- Developed and optimized visual instructional tools using the JavaScript Algorithm Visualization Library (JSAV), significantly improving student engagement and comprehension of complex concepts.
- Pioneered enhancements to JSAV by integrating support for advanced data structures, including the transition from singly linked lists to doubly linked lists and the implementation of circular linked lists, thereby broadening the educational scope.

## TEACHING EXPERIENCE

**University of Pittsburgh** Pittsburgh, PA
*Teaching Assistant, Department of Computer Science* September 2023 – December 2023

- Responsible for learning all background and lecture material necessary for accurately grading homework, quizzes, and exams at the instructor's discretion.
- Provided detailed feedback on student assignments to guide improvements and enhance learning outcomes.
- Conducted weekly office hours and after-school homework sessions to address individual student needs and support their academic success.

**College of Saint Benedict & Saint John's University** Collegeville, MN
*Teaching Assistant, Department of Computer Science* September 2022 – December 2022

- Facilitated six weekly tutoring sessions, each lasting two hours, supporting approximately 15 students per session to enhance their understanding of computer science principles.
- Developed and graded assignments and personal projects, providing substantial feedback aimed at fostering students' technical skills.
- Addressed a broad range of student inquiries, spanning from technical challenges to administrative concerns, ensuring comprehensive support.

**Holdingford Elementary School** Collegeville, MN
*Volunteer Instructor, Holdingford CS Club* September 2021 – December 2021

- Conducted weekly one-hour classes, engaging over 20 elementary students in the fundamentals of programming through hands-on experience with Scratch.
- Developed and delivered instructional content on basic coding algorithms, tailored to a young audience's understanding.
- Mentored students in applying their coding skills to build and program their own projects using Lego EV3 robots, fostering practical understanding and creativity in robot programming.

## PUBLICATIONS

Kim, A., **Wang, H.**, Myers, N., Gupta, P., Steuer, F., Kann, M. R., Cong, T., Liu, H., & Tafti, A. P. (2024). Predicting Unplanned Return to Operating Room Following Primary Total Shoulder Arthroplasty: Insights from Fair and Explainable Ensemble Machine Learning. Studies in health technology and informatics, 318, 156–160. https://doi.org/10.3233/SHTI240908

Kamble, T. S., **Wang, H.**, Myers, N., Littlefield, N., Reid, L., McCarthy, C. S., Lee, Y. J., Liu, H., Pantanowitz, L., Amirian, S., Rashidi, H. H., & Tafti, A. P. (2025). Predicting Cancer Survival at Different Stages: Insights from Fair and Explainable Machine Learning Approaches. International Journal of Medical Informatics, 105822. https://doi.org/10.1016/j.ijmedinf.2025.105822

## HONORS & AWARDS

CSB/SJU Global Scholarship 2021
CSB/SJU International Scholarship 2019-2022

## PROFESSIONAL EXPERIENCE

**University of Pittsburgh** Pittsburgh, PA

*Student Developer, Department of Health Information Management* October 2023 – Present

- Developed and deployed innovative technology solutions for mHealth, AI, and IoT applications, impacting over 200 users across multiple healthcare settings.
- Specialized in scalable back-end services using Java, Spring Boot, and Python; proficient in database management with PostgreSQL and Redis.
- Engineered and managed the lifecycle of 30+ RESTful APIs for enhancing mobile and web application functionalities in healthcare.
- Coordinated with cross-functional teams in agile environments to streamline requirement gathering processes, achieving a 30% reduction in project delivery timelines.

## SKILLS

- Programming Languages: Java, Python, JavaScript, TypeScript
- Frameworks/Tools: Spring Boot, Ionic, PostgreSQL, MySQL, Redis, JSAV, Machine Learning
- Certification: Certified Scrum Master

## Other Information

- Languages: English, Chinese, Japanese
- Personal Website: https://htwang021.github.io/academic_web/