Shao-Wei Huang

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EDUCATION

Auburn University *Aug 2024 – Present*
Ph.D. in Statistics
Honors: Excellence in Research Award (DMS), 2025

Auburn University *Sep 2019 – Aug 2023*
M.S. in Probability and Statistics

Tunghai University, Taiwan *Sep 2014 – Jun 2018*
B.S. in Applied Mathematics

RESEARCH & PROJECT EXPERIENCE

Brain Signal Classification via Riemannian Geometry *2025 – Present*
Developing Riemannian geometry-based methods for brain signal classification (e.g., EEG, fMRI), including analysis of cross-session generalization.

Feline Obesity Assessment via Image-Based Modeling *2025 – Present*
Building an image-based deep learning classifier to estimate body condition score, with the long-term goal of converting the model into a telehealth screening tool for rural and underserved pet owners.

Predictive Modeling for Surgical Timing (UAB PMR Study) *2022 –2024*
Co-developed a longitudinal predictive framework integrating Cardiovascular Magnetic Resonance(CMR) features to identify ventricular deterioration risk in asymptomatic mitral regurgitation patients, improving early detection and enabling proactive surgical decision-making.

Xresta Medical Imaging Console Development *Sep 2021 – Jul 2024*
Developed **Xresta**, a diagnostic X-ray acquisition and imaging platform now utilized in veterinary and human hospitals across Taiwan, integrating detector communication, DICOM processing, and PACS connectivity into a modular clinical workflow system **to support routine diagnostic use**.

PUBLICATIONS

- Dell'Italia, L. J., Kane, M. S., Zheng, J., **Huang, S.-W.**, Pat, B., & Denney, T. S. (2025). Persistent shift in principal strain angles and postsurgical decline in LVEF in patients with primary mitral regurgitation. *Journal of the American Heart Association*. https://doi.org/10.1161/JAHA.125.043558

- Zheng, J., **Huang, S.-W.**, Ahmed, M. I., Pat, B., Lloyd, S. G., Sharifov, O. F., Denney, T. S., Jr., & Dell'Italia, L. J. (2024). Imminent risk of LVEF decline in asymptomatic patients with primary mitral regurgitation. *Frontiers in Cardiovascular Medicine*. https://doi.org/10.3389/fcvm.2024.1410859

WORKING EXPERIENCE

Software Engineer — Medical Imaging Systems Development *Sep 2021 – Jul 2024*
Visionatics Inc. → InnoCare Optoelectronics Corp., Taiwan

- Developed a large-scale X-ray acquisition and diagnostic console adopted by human and veterinary hospitals, contributing to real-world clinical adoption.

- Designed the core software architecture using a modular Model–View–Presenter (MVP) pattern, delivering reusable C class libraries for multiteam integration.
- Implemented DICOM communication, PACS connectivity, and detector–console optimization to ensure secure, low-latency performance in high-volume imaging environments.

TEACHING EXPERIENCE

Auburn University

Teaching Assistant, Auburn University *Spring 2025 - Spring 2026*
Courses: Pre-Calculus Trigonometry; Statistics for Biological and Health Sciences; Statistical Learning.
Responsibilities included grading and holding weekly office hours to support undergraduate students.

Mathematics Tutor — Math Tutoring Center *Spring & Summer 2025*
Offered tutoring in calculus, statistics, and linear algebra, offering individualized problem solving support for exam preparation.

Private Mathematics Tutor (High School Level) *2016 – 2018*
Delivered one-on-one math instruction for college entrance exam preparation.

SKILLS

Statistical Modeling & Inference: Specialized in Machine Learning, Deep Learning (CNNs), Supervised Classification, and Longitudinal Modeling

Machine Learning & Data Processing: Python (PyTorch, NumPy), Image Processing, DICOM/PACS Integration

Programming & Software Engineering: C# (Advanced), ASP.NET (MVC), PHP, JavaScript, HTML/CSS, Bootstrap, jQuery, C++

Databases: Microsoft SQL Server, MySQL

Tools: Visual Studio, VS Code, Git, InnoSetup, Markdown