Two Ph.D. Research Assistantships Available

Two PhD student research assistant positions are available with Dr. Weihua Zhou in the Laboratory of Medical Imaging and Informatics (MIIL) at Michigan Technological University Department of Applied Computing. MIIL is dedicated to designing and applying advanced AI/deep learning methods to improve the diagnosis and treatment of patients with complicated chronic diseases (in particular, coronary artery disease/heart failure/Alzheimer's disease). Our research is driven by clinical significance and featured by multi-modality image fusion and multi-source information integration. The huge volume of real patient data accumulated from our long-term dedicated research and collaboration allows us to develop and validate cutting-edge methods and models.

Our results have been published in leading journals such as JACC: Cardiovascular Imaging, Pattern Recognitions, EJNMMI, and Computers in Biology and Medicine. Dr. Zhou has published more than 100 peer-reviewed papers. As a translational lab, we pay special attention to clinical applications. Computer approaches and software tools invented by our lab have been used in more than 30 hospitals and are invested by multiple industrial partners. Our prosperous research directions, outstanding team and databases will play a key role in your success.

Benefits to students: You will work with interdisciplinary team members (research scientists, engineers, and medical physicians) to design and validate practical healthcare software systems. You will publish papers in leading journals and conferences and have opportunities to win prominent fellowships and career opportunities as our previous MIIL students did. You will be connected with national and global academic, clinical, and industrial leaders, and have the opportunities to apply for promising patents and intelligent properties.

Position 1 - PhD Student Research Assistant in Medical Imaging

Assistantship Description: The PhD research assistant will design and develop advanced AI/deep learning algorithms in image processing and computer vision (medical image segmentation, feature extraction, image registration/ fusion, and image classification) to analyze medical images for improved diagnosis and treatment. Representative algorithms include the state-of-the-art generative adversarial networks, transformers, and graph convolutional networks. Supported by NIH and other grants, this student will collaborate with a number of hospitals for development and validations.

Qualifications:

- MS degree in computer science or engineering (computer, biomedical, or electrical). Candidates with Bachelor degrees and outstanding academic records will also be fully considered.
- **Experience in computer algorithms for image processing (coursework, contests or publications) is required**.
- Programming skills. Python for machine learning and digital image processing is preferred.

Position 2 – PhD Student Research Assistant in Statistics (Medical Informatics)

Assistantship Description: This student will study the Statistics PhD program at Michigan Technological University Department of Mathematic Sciences. The PhD research assistant will develop and apply advanced machine learning algorithms to integrate multi-source (clinical variables, genomic data and imaging features) longitudinal data for risk stratification of complicated chronic diseases. This student will collaborate with the Center for Biomedical Informatics and Genomics (CBG) at Tulane University, University of California Irvine, and Mayo Clinic.

Qualifications:

- MS degree in statistics. Candidates with Bachelor degrees and outstanding academic records will also be fully considered.
- Programming skills. Python/ R/ MATLAB for statistical machine learning is preferred.

For both positions,

- Strong communication skills, in terms of both formal written reports/manuscripts and oral presentations are required.
- For international applicants, TOEFL (minimum: 79) or IELTS (minimum: 6.5) is required.

Funding: Successful candidates will receive a scholarship for their research work, which covers their tuition and living expenses. Students will have opportunities to apply for academic and industrial grants and fellowships.

Timing: The start date is **Spring 2024**. The position is available immediately and open until filled.

Application Procedure: For those who are interested, please contact Dr. Zhou (whzhou@mtu.edu) with your resume and thesis/publications (if any). Potential applicants are encouraged to discuss their interests and background with Dr. Zhou first before a formal application is submitted.

MTU Description: Michigan Tech is located in Houghton, MI in the heart of Michigan's Upper Peninsula. Houghton is situated on the hills bordering the beautiful Portage Waterway and is only minutes from the Lake Superior shoreline. The area offers a bounty of cultural and recreational opportunities plus a low cost of living. Houghton was rated as the 15th Greatest Place to Live in America by Outside Magazine in 2014 and was ranked as the safest college campus in the nation by College Magazine. This environment combined with a great research opportunity results in an excellent quality of life. **Michigan Tech College of Computing is ranked #2 in Public Colleges Where Grads Make Six Figures (Money.com).**