

DEPARTMENT OF MECHANICAL, MATERIALS AND INDUSTRIAL ENGINEERING
COLLEGE OF ENGINEERING AND APPLIED SCIENCE

APPLICATION DEADLINE: April 3, 2026

PROJECT TITLE: AI-Enabled Brain Tumor Progression Modeling

Physical Requirement :

No special physical requirements. Student should be able to work at a computer for extended periods, attend regular project meetings.

Project's Technical Skills Requirement :

Undergraduate background in Computer Science, Data Science, Biomedical Engineering, Electrical Engineering, or a related field. Required skills: Python programming Basic image processing and data analysis Foundational machine learning / deep learning knowledge Experience with PyTorch or similar deep learning frameworks Preferred skills: Medical image analysis or computer vision Familiarity with MRI or other biomedical imaging data Exposure to generative AI, diffusion models, or related probabilistic models Experience with Linux, Git, and research coding workflows

Project's Available Positions : 1 undergraduate student

Yingyan Zeng

Department of Mechanical, Materials and
Industrial Engineering
624 Rhodes Hall
Cincinnati, OH 45221
zengyy@ucmail.uc.edu
Phone: 540-739-0565

Project Description

Research Overview

The student will contribute to a research project on AI-enabled tumor progression modeling using longitudinal medical imaging data. Tasks may include medical image preprocessing, image analysis, dataset organization, implementation of machine learning and deep learning models, and evaluation of generative methods for modeling tumor evolution. Preferred background includes Python programming, image processing, machine learning, and interest in medical imaging or AI for healthcare. Prior experience with deep learning, computer vision, or medical image analysis is helpful but not strictly required. Through this project, the student will gain hands-on experience in research computing, medical image analysis, AI model development, and scientific problem solving in a healthcare application domain. U.S. citizenship requirement: none anticipated.