UNIVERSITY OF PITTSBURGH INSITES INFRASTRUCTURE SENSING for INTELLIGENT TRANSPORTATION and ENERGY SYSTEMS CONSORTIUM

University of Pittsburgh

PhD Student Position Available at University of Pittsburgh Ohodnicki Lab:

"Physics Informed AI and ML Methods for Infrastructure Sensing"

Position Opening: Available Beginning **Summer or Fall 2026**.
Application Process: Provide updated resume and a statement of interest by email, also submit a formal application to Swanson School of Engineering here: Graduate Applications
Contact: Prof. Paul Ohodnicki (pro8@pitt.edu)

Description:

Opportunity exists to join a research group focused on solving problems at the interface between optical sensor hardware and data analytics through interdisciplinary collaborations. The position focuses on physics informed Artificial Intelligence (AI) and Machine Learning (ML) methods applied to distributed sensing of infrastructure for real-time monitoring, with emphasis on optical fiber sensing. The research will be carried out in close collaboration with industry and government partners through INSITES consortium, a newly established university – industry – government partnership focused on distributed sensing and enabling digital technologies (AI, ML, digital twins) applied to critical infrastructure.

Distributed sensing applied to critical infrastructure has the potential to provide unprecedented levels of visibility to next generation intelligent infrastructure. The optical fiber sensing platform has unique inherent advantages for such applications through the capability to deploy remotely and in conjunction with a wide range of critical infrastructure segments including energy, civil, transportation and others. However, effective and efficient data interpretation is a key gap within industry preventing broader adoption and adaptation to high priority applications. The Ohodnicki Lab has been active in research focused on physics informed AI and ML applied to distributed sensing applications for infrastructure monitoring and is seeking an interested PhD student to continue the research.

Additional Info:
www.engineering.pitt.edu/INSITES
www.engineering.pitt.edu/UPISC,
www.engineering.pitt.edu/OhodnickiLab

Key Objectives and Outcomes of PhD Research

- Physics based modeling of structural infrastructure
- AI and ML-based method development and application for distributed sensing data
- Sensor network optimization
- Digital twin modeling of critical infrastructure and sensor data integration

Desired Qualifications and Experience

- An undergraduate or MS degree in a relevant field such as mechanical engineering, civil engineering, electrical engineering, computer engineering, or related
- Prior experience in multi-physics modeling (Ansys, Comsol, etc.)
- Prior experience in traditional and physics informed AI and ML methods
- Publications and presentations in international technical conference and journals