



University of Pittsburgh

Swanson School of Engineering
Department of Mechanical Engineering and Materials

636 Benedum Hall
3700 O'Hara Street
Pittsburgh, PA 15261
Phone: 412-624-7661
FAX: 412-624-4846

Position: Fiber Optic Sensing for Infrastructure Monitoring Graduate Student Researcher (PhD, MS)

NOTE: US Citizens or Green Card Holders Only

Position Contact: Prof. Paul Ohodnicki, pro8@pitt.edu

Position Start Date: As Soon as Possible, Spring 2024 Semester Strongly Preferred

Position Description:

The Department of Mechanical Engineering and Materials Science (MEMS) at the University of Pittsburgh invites applications for a graduate student researcher with an emphasis on acoustic fiber optic sensing for energy infrastructure monitoring. The graduate student position will benefit from an opportunity to partner with an interdisciplinary research group of undergraduate, graduate, and PhD level researchers, and to engage with the [University of Pittsburgh Infrastructure Sensing Collaboration](#) based at the University of Pittsburgh. In addition, the student can expect close collaboration with other researchers from industry and the national laboratory system including Department of Energy, Department of Defense, and both large and small companies ranging from sensing materials and device research to application and field testing.

The advisor will be Prof. Paul Ohodnicki and co-advisor will be Research Prof. Khurram Naem. The graduate student will have access to Ohodnicki Lab (<https://www.engineering.pitt.edu/OhodnickiLab/>) at University of Pittsburgh, extensive shared facilities of the University of Pittsburgh Infrastructure Sensing Collaboration (UPISC, <https://www.engineering.pitt.edu/UPISC/>), and the Petersen Nanoscale Fabrication and Characterization Facility (NFCF, <https://www.tour.pitt.edu/tour/nanoscale-fabrication-and-characterization-facility>) amongst other facilities across campus.

More information about the Ohodnicki Lab research focus and interests can be found here:

<https://www.youtube.com/watch?v=7Vn7XJmHGr4&feature=youtu.be>

Successful applicants should display a strong interest in photonics, opto-electronics, acoustics, and structural health monitoring, as well as an interest to learn and apply fiber optic sensor system design as well as to perform representative sensing experiments. In addition, students should have a strong interest in understanding application of acoustic sensing to infrastructure monitoring in an interdisciplinary team.

Applicants should have an undergraduate degree in mechanical engineering, electrical engineering, materials science and engineering, applied physics, or a related field. Prior experience research in fiber optic sensing and acoustic sensing is desirable but not required. This project offers ample opportunity to develop relevant skills including fiber optic sensor design, photonic device modeling and simulation, opto-electronic system design and test, and acoustic sensing data analysis, interpretation and prediction through advanced ML/AI models

Anticipated project work assignments will include design, build, and testing of acoustic sensors as well as integration strategies for acoustic monitoring and data analysis and interpretation methods. In addition to conducting research, duties will also include preparing reports, performing literature reviews, supervising undergraduate students, and assisting with other projects.

Application Process:

Interested students should contact Prof. Paul Ohodnicki (pro8@pitt.edu) and also submit an application for the MS or PhD program at the following link: <https://www.engineering.pitt.edu/graduateapplications>