ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF ENGINEERING AND APPLIED SCIENCE

RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

APPLICATION DEADLINE: 11/26/2022

PROJECT TITLE: Software development in machine learning and data science

Physical Requirement: Must be a good human being.
Project's Technical Skills Requirement: C++ programming, data structures (required); python and shell scripting skills desirable
Project's Available Positions: 2

Philip A. Wilsey
Dept of ECE
College of Engineering and Applied Science
836 Rhodes Hall
PO Box 210030
Cincinnati, OH 45241
philip.wilsey@uc.edu

Project Description

My research lab is investigating advanced algorithm development for machine learning/data science. In particular we are working with data mining techniques that are based on the mathematical field of topology (and specifically on persistent homology). This project will require the coding of algorithms to contribute to our open source LHF software project (Lightweight Homology Framework, github.com/wilseypa/lhf). The project requires support for a variety of tasks including building various types of graphs from the input data to building python library support for output analysis or synthetic test data generation. The work will address processing large data sets in higher dimensions and may also involve various prototyping to help establish working hypotheses from speculative conjectures.