

Faculty of Engineering

Summer Research Program 2024-2025

Project Title: Developing python packages for analyzing X-ray data

Supervisor(s): Dr. Matthew Gebert, Prof. Chris McNeill

Department: Materials Science Engineering

Email: matthew.gebert@monash.edu

Website profile of project supervisor: mcneillresearchgroup.com/, mattgebort.com

Objective

Contribute to modern, open-source python packages that can be used by researchers to analyse their X-ray data.

Project Details

The McNeill group works with a variety of Synchrotron beamlines to understand the structure/properties of organic semiconductors; x-rays can scatter with elements and produce a variety of effects such as diffraction, refraction, and absorption. Part of this work involves routine data analysis, but also the development of new techniques that can be used by the research community. To facilitate such analysis/techniques we construct open-source software, using modern software engineering tools. Being a part of this project, you will assist in the construction of a python package, contributing to either core-functionality or GUI elements. You will have opportunities to be taught about scientific python and its core packages if not already familiar.

Prerequisites

Programming experience: a small amount, such some experience in Matlab, C, Python, LabView, Mathematica or an alternative language. Familiarity with algorithmic thinking.

Our ideal candidate will have a desire to learn new technology, persistence and willingness to contribute to coding for the duration of the project (with help).

Additional Information

Applicants may be required to attend an interview.