**Postgraduate Computing Course:**

**Aim:** To use python to create a small software package on GitHub that analyses the connectivity of hydrides within the microstructure and write a report in latex describing your code.

**What this will involve:**

* Loading in an image
* Application of filters and thresholding to generate a binary image
* Figuring out a way to quantify how connected the hydride microstructure is in the radial direction here are some papers that might be able to help:

<https://www.sciencedirect.com/science/article/pii/S0022311520310655>

<https://www.sciencedirect.com/science/article/pii/S002231151830120X>

https://www.sciencedirect.com/science/article/pii/S0022311521000404?via=ihub

* You will need to use GitHub as your workflow, need good commits and regular communications to get good marks.
* On GitHub you will need arrange your work effectively, we suggest creating functions for all of your code and separating all of the work into folders. The clearer your workspace is to go through and follow the better you will do in this section.
* You will need to have an example notebook that runs the functions within your code and explains how to use your code. We suggest that a Jupyter notebook would be very useful for this.
* You will write a report in LaTeX on this project – see marking criteria for key things to include.

**Key Things to Consider:**

* This module requires consistent work throughout the whole semester, we will be checking your work flows bi-weekly and allocating marks to consistent updating of the code 🡪 need to see commits/push/pull requests/branching/creating issues.
* This is a group project, everyone needs to work together, at the beginning of the final report, group members names and tasks completed must be listed and grades could vary dependent on contributions.
* Importantly, your git workspace needs to be organised well, neat and easy to follow ensuring that good coding and presenting practices learnt throughout the course are implemented.
* Bi-weekly help sessions will be held if any advice or help is needed.