

Propose a vacation student project for Summer 2020

This call is now closed

The deadline for making your proposal(s) was 18:00 Friday 13 March 2020.

This form is for one project proposal, so to propose multiple projects please submit a separate form for each project. Any queries, do ask - Toby.

Project supervisor email *

Suzanne.Embury@manchester.ac.uk

Title of the project *

Quantitative insights into student teams: calculate and visualise software engineering metrics for student team repositories

Source of funding *

- Department funding requested
- You have your own funding (e.g. research grant)

Objective of the project *

To develop Python code to calculate and visualise Truck factors and code-based metrics for any given student git repository using data from either a local git repository or the GitLab API.

Number of students requested (justify if > 1) *

1

Start date, end date, total duration (weeks) *

08/06/2020-14/08/2020 (10)

The benefit to the Department *

A tool to analyse and visualise student git repositories

The benefit to the student *

Development of a data processing and visualisation tool in Python
Experience of working in a multidisciplinary research team
Deeper understanding of software engineering metrics and team dynamics
Experience in coding to external APIs, especially Git and GitLab
Experience in delivering a tool that will be used in our courses

Skills needed by the student. *

An interest in version control systems
An interest in static analysis
Experience of gathering evidence from online sources/literature
Previous experience of coding in Python
Previous experience of coding in Java
Ability to work independently

Desirable: successful completion of COMP23412 and COMP23311

Details of the work that the student would do *

**Can you help us gain quantitative insights into the work of our student software engineering teams? **

The Institute of Coding at the University of Manchester is looking at the relationship between students' use of software engineering tools e.g. GitLab and their attainment in team projects.

As part of this work, we have developed code to calculate a number of software engineering metrics for student repositories. The main aim of this summer project is to expand this set of metrics in two key areas:

- Truck factors - understanding how work is distributed among team members. We have developed code to calculate Truck/Bus factors for student projects using data from the School's GitLab API. During this project, you will test and document this code and adapt it to work with additional data sources e.g. local repositories.

- Code based metrics (e.g. code quality metrics /static analysis). You will search online sources to identify and select code based metrics applicable to student software engineering team projects. Once a list of target metrics is agreed with the research team, you will implement and fully document Python code to generate these from a range of data sources including the GitLab API and local repositories.

To help the research team gain insight from the metrics you have produced, if time allows, you will design and implement an extensible dashboard for viewing the metrics at multiple levels (students, teams, cohorts).

Infrastructure requirements and any required staff support other than the project supervisor *

Access to a University of Manchester laptop

Supervision arrangements throughout the duration of the project (named staff and dates covering the entire duration) *

The project will be supervised by Dr Kamilla Kopec-Harding, with support across the period from other members of the IoC@UoM team: Julio Cesar Cortes Rios, Suzanne Embury, Caroline Jay.

Location of the project work (building/room) NB projects must be on-campus *

Kilburn 1.17

Google Forms