**Name**: Mark Gibson

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**Supervisor**: Dr David Gregg

**Project Title**: An Experimental Comparison of Concurrent Data Structures

**Project Description**:

The goal of this project is to build implementations of several concurrent data structures, and compare them experimentally on a variety of multi-core and SMP architectures, under various use-cases.

I have started this project already by doing some general research in the area and of a variety of concurrent data structures in "The Art of Multiprocessor Programming" by Maurice Herlihy & Nir Shavit and in several online articles.

Once Dr Gregg and I have decided on a suitable plan of action I will then proceed in numerous phases consisting of research and implementation whereby I will research a relevant data structure, implement it and then test it, gathering test data to use in comparisons with other data structures.

Once I have gathered sufficient data from a data structure I will move on to research and implement another data structure and so on, though this could easily change so that I implement several data structure and then test them all in quick succession depending on how the project is going or which method I prefer.

As stated above I have already done some research into the state of the art from books and online articles, and this will continue as I start each new development phase, complementing my research with additional material that I find or that Dr Gregg recommends. By Christmas I hope to have a handful of data structures implemented or in the process of being implemented and some test data.

After exams, I hope to continue my development phases to include all of the data structures Dr Gregg wants and to continue gathering test data. Hopefully by late March I hope to use what I have learned to move outside of the project brief and perhaps try improving the data structures I have implemented or try and design a new concurrent data structure while writing my report on the work I have done.