

Advice on 4th Year Computer Science Projects for Examination in Trinity Term of 2020

Master of Computer Science Master of Computer Science and Philosophy Master of Mathematics & Computer Science

Computer Science candidates are required to undertake a project in the fourth year. Mathematics and Computer Science candidates are required to take either a Computer Science project or a Mathematics dissertation; a Mathematics dissertation must be a whole unit. Computer Science and Philosophy candidates have the option of taking a Computer Science project or a Philosophy thesis. This document describes Computer Science projects; please refer to Mathematics for details on Maths dissertations.

Fourth year Computer Science projects are similar in style to third year projects although we would expect students to provide a greater contribution and show a greater depth of understanding and accomplishment. These informal notes are intended to supplement, but not to replace, the formal regulations in the grey book, and to amplify the advice given in the Course Handbook. Questions can be addressed to the projects coordinator, Dr Jonathan Whiteley (jonathan.whiteley@cs.ox.ac.uk).

1 Amount of work

The project amounts to about one third of the work in the fourth year of the course, and one third of the examination credit, and so should be thought of as occupying about a term's work in total. For the project to go smoothly without your feeling under time pressure, it is important to settle on your project and find a project supervisor in Trinity Term of your 3rd year, and make good preparation over the Long Vacation. The norm is that the first draft of your report is finished during the Easter vacation of the fourth year.

2 Choosing a project

You should begin by discussing your choice of project and the list of potential supervisors with your tutor. A project might involve the specification, design and implementation of a piece of software or hardware, or the use of existing computing tools to develop some proofs or similar pieces of mathematics. A list of outlines for suggested projects is published by the Department of Computer Science at

<http://www.cs.ox.ac.uk/teaching/studentprojects/undergraduate.html>

Projects need not be drawn from this list, but it may serve both as a guide to drawing up proposals and as a help in finding supervisors. Many supervisors are willing to discuss variations on the project topics they have suggested, or to consider different projects within the same general area that are suggested by candidates themselves. If you want to suggest your own project, then you should discuss the possibilities with your tutor and with potential supervisors. Your tutor may be able to supervise the project, or it may be better to choose another supervisor whose interests fit the project better. Note particularly that the Regulations require that the project be on a topic in *Computer Science*; this means that projects whose main focus is business or economic aspects of the use of computers are not likely to be accepted. Please note certain supervisors are more popular than others, and supervisors may decide that they cannot take on any further students.

3 Proposing a project and registering

A project proposal must be approved by the Undergraduate Supervisory Committee for Computer Science; in practice this responsibility is delegated to a Projects Committee. Whether you choose a project from the published list or propose your own, it is best to make contact with a supervisor and get his or her agreement before submitting your proposal. Supervisors are normally expected to be a member of the Faculty of Computer Science or Faculty of Mathematics or the Faculty of Engineering Sciences. If you are unable to find a

supervisor, please indicate at least three projects from the list (from at least two different possible supervisors) and the Projects Committee will endeavour to find an appropriate supervisor.

Proposals should be delivered to Ms. Brenda Deeley at the Department of Computer Science, Wolfson Building, Parks Road, by **Monday of week 7 of Hilary term of your third year.**

4 Carrying out the project

Although fourth year projects are similar in style to third year projects, students are expected to provide a greater contribution and show a greater depth of understanding and accomplishment, and to competently use advanced concepts and methods from 3rd and 4th year courses.

A fourth year project should contain an original contribution, although not necessarily to the level of a research paper. For example, a project that involves implementing an algorithm or technique should contain a clear explanation of the underlying theory, a significant amount of testing, as well as evaluation and assessment of the different methods chosen. Similarly, a project that contains an exposition of a recent development in theoretical computer science should contain an original presentation of the relevant theory, e.g. containing new illustrative examples and new, helpful, notation and terminology, and perhaps original proofs of certain propositions and lemmas.

You should expect to see your supervisor for half an hour per week, or for longer on a less frequent basis. You should contact your supervisor to arrange meetings, please do not wait for your supervisor to contact you. If you find that your supervisor does not respond please speak to your tutor in the first instance.

What to do if things go wrong...

It is inevitable that not all projects will run smoothly or as expected. Please do not wait until Trinity term to raise concerns about your project, the sooner someone is made aware of any issues you have the more likely they are to be able to help. You should speak to your supervisor or tutor in the first instance please do feel free to speak to someone in the Computer Science Academic Admin team as well.

5 Reporting

Progress Report each term:

You are required to submit a progress report for each term of your project. This is an informal report which should detail your progress of the last term and should flag up any problems you may have encountered, including project supervision. You are welcome to ask for the whole report or parts of the report not to be disclosed to your supervisor (if you are experiencing problems). Your report will be forwarded to your college tutor, who will discuss any issues of supervision or progression with you.

Final Report in Trinity:

In writing your final project report, you will find it helpful to have a target audience in mind. You should write as if for another undergraduate who is going to continue the project. You may assume that they have the same knowledge from courses they have taken as you did when you started, but would benefit from a concise summary of the background reading you did as you began the project. They will also want an outline of how your software works, what the components do, and how they fit together, so that they get the big picture without being overwhelmed by detail.