File 20100304.1324: Text of my GSS report (in case it gets lost to a timeout):

1. *How many times have you met with Dr Andrew Martin since your last report?*
   - 9
2. *Do you have any concerns about the progress of your course over the last reporting period?*
   - No
3. *Self-assessment of overall progress this term:*
   - Much better than last term. After getting stuck in December and quite depressed at the time about lack of progress throughout the term, I raised a flag about these concerns in my weekly status report. My supervisor and my college advisor both immediately responded with help. Following their suggestions, I am back on track and making progress.

     Description of the problem: I moved house from Oxford to Denver, Colorado, USA at the beginning of Michaelmas term in order to have better access for research. (I am studying cross domain systems that are developed in Colorado and California, then tested in Maryland, New York, Washington DC, Colorado and California.) To gain access to the population of defence accreditors whose behaviour I am researching, I took on new responsibilities at Lockheed. Between moving house overseas and running what amounts to another research project, I lost ground during Michaelmas term, perilously close to the deadline for Confirmation of Status.

     How the problem was solved: I formally raised concerns about progress on New Year's eve. Dr Martin and Dr Ashbourn responded immediately. In our next weekly meeting, Dr Martin helped formulate a plan for getting back on track. I would write up my methodology, travel to Oxford for a face-to-face meeting as soon as possible, give a seminar in the department, and finish several papers for publication. Both recommended suspending progress retroactively for last Michaelmas term as a risk-reduction measure. I have applied to DGS to do that. It should not delay my expected completion date, but reduces the worry of missing the deadline for Confirmation of Status next term, letting me concentrate on the work.
     Part of the difficulty was that I felt I lacked a good enough statement of my thesis to be able defend it (anticipating the confirmation of status viva later in the year). I found a book of advice for PhD students with a section about testing the robustness of a thesis statement [1, chapter 2]. I tried their exercise and it worked. I now have a specific formulation of my thesis in three statements.
     - Firstly, the overall question: what happens when an existing software system, one that has been tested successfully in the past, encounters security test and evaluation criteria that are new or have suddenly changed? (This is not an uncommon occurrence for cross-domain systems, the specific sub-area I am interested in.)
     - Secondly, and what I believe to be the root cause of steadily increasing cost, in both calendar time and money, of the Certification Test and Evaluation (CT&E) of cross-domain systems: that certifiers and accreditors in the US Department of Defence (specifically, Designated Approving Authorities, or DAA) are conflating the practice of Independent Verification and Validation (IV&V) with the principle of defence in depth.
     - Thirdly, a testable question: is there a difference in the post-CT&E software defect rate (as measured by the number of Category I, II, III, and IV findings) between different versions of the same system in subsequent rounds of CT&E by different DAAs?

     My immediate task is to finish writing a paper to be submitted to the Second International Conference on Advances in System Testing and Validation Lifecycle in August. (An earlier version of that paper was rejected by the Annual Computer Security Applications Conference in December.) The deadline is two weeks from now. Next tasks are to finish writing my methodology chapter, submit a paper to

the journal Crosstalk, and gather new data from the participants in my first and second case studies. If I can get acceptances of those two papers, plus having some preliminary results to talk about and two chapters finished, then I ought to be in good shape for confirmation of status later this year. I expect writing-up to take six months past achievement of confirmation of status.

4. *Training attended:*
   - I gave an hour-long talk at the weekly software engineering seminar on 19th February about my thesis, methodology and preliminary results. Other training I have undertaken this term, on using map-reduce for finding probabilistic matches in a very large database of text phrases, was paid for by the other research programme I am currently running for Lockheed. I expect a similar technique will be applicable to the development of a tool I want to build and validate as part of my dissertation—for consolidating the testing criteria, test procedures, and test result reports of multiple rounds of CT&E in a form acceptable to DAAs from different agencies with the result a lowering of total cost during the life cycle of a particular cross domain system. Also this term I presented two talks on setting up a home INFOSEC lab for information assurance engineers at Lockheed. I gave presentations on my Lockheed research to the US government programme office and to the sponsoring agency.
5. *Training required:*
   - I hope to present at the VALID 2010 conference in Nice, France this year and to gain more experience with journal publication.

References

[1] Gordon Rugg and Marian Petre. *The Unwritten Rules of PhD Research*. Open University Press, 2004.