

File 20090123.0957: Notes for Greg Edwards talk (№ 1):

Grad school is different from undergrad; for a research degree, which is what a PhD is, you pretty much have to go to one of the few places where the particular area of research that you're interested in is being done. You have to go where the experts are. The reason is because your task is to become one of those experts; in fact, to become the world's foremost expert in your particular research sub-area.

My particular sub-area is only done by a small number of people.

In my case, the center of the universe turned out to be a choice of three schools: UT Austin, under professor Kauffman; University of Idaho, under professor Jim Alves-Foss, whose group has a close relationship with NSA; and oddly enough, Oxford. Well, the chance to go there was intriguing. I sent them an application as a joke, just so I could say I applied there, but I didn't imagine I'd actually get in. I just thought it would be cool to have a rejection letter from Oxford. But a few weeks later when a professor emailed me asking about my research proposal, and offered me a place in the fall, I was—let us say—very surprised.

I selected Oxford because I was studying the interface between US and UK government certification and accreditation programmes, so it was a natural fit.

And besides, you can't turn down an opportunity like that. It doesn't matter that it's scary; you've got to take it. It was a learning experience: I, my wife, and my eight-year-old daughter all learned that we could do things we never thought we could.

I am studying Common Criteria certification and accreditation. It is something I hope Lockheed Martin will have need for in the future, so they'll want to keep me around.

In a sense, it's like a requirements change. The environment changed. Common Criteria did not exist when RM was born, but it exists now, and NSTISSSP № 11 requires it. Common Criteria is the future, so we have to be ready.

The UK higher education system is a bit different from the US system, so let me explain. Oxford expects research students to hit the ground running. There is no *required* coursework; students are expected to apply to the school with a fairly well thought out research proposal in mind. If one of the professors in the department likes your proposal, and wants to supervise it, then you're in. The first year is spent as a PRS, a Probationer Research Student. PRS's spend the first year doing a thorough review of the literature, designing a methodology, and at least in the Computing Laboratory, prototyping. Then, at the end of your first year, you write a transfer report. It's essentially the first three chapters of a PhD dissertation. Then you're examined orally on that transfer thesis, in a process called *viva voce*. It's your defence of your thesis proposal. If you pass the *viva* defence, your status changes to advanced student, or PhD candidate. If you fail, you can have one more term to rewrite, then a second chance at the *viva*. All PhD programmes, anywhere in the world, give you two chances at qualification exams. If you fail the *viva* a second time, they usually award a master's degree, called an MPhil by Research, and you're done. Because if you've gotten as far as the *viva*, you've just done all the work for a research master's degree. If you pass the *viva*, well, they don't give you a masters at Oxford, because the rule here says that work done for one degree can't be used to satisfy the requirements of another. So when I passed my transfer *viva* last week, all I got was a pat on the head and a pile more work to do. Because I just convinced the assessors in that *viva* that I have a plan, and preliminary results that look interesting, and a methodology that looks workable—although they suggested some changes to it, which I agreed to, and I also have a deadline. In the UK, I have to finish no later than 3 years after starting. I have burned up a little over 1 year already. I can actually get one extension to a total of 4 years, but if I've not submitted and defended my thesis by that time they'll kick me out. It's a hard deadline. When I finish writing my dissertation, I have another *viva*, which is my final defence. That should be easier, since by then I ought to be the world's foremost expert in my sub-area. If I pass that defence, I graduate. Hopefully that will occur in late 2010.

Letters of recommendation: get them from people who have seen you work. If you can get them from working academics, all the better.

## References