

EDINBURGH FEATURES

[your profiles](#)[forums & chats](#)[small ads](#)

EDINBURGH

[features](#)[video interviews](#)[calendar](#)[IDEASFACTORY live](#)[links](#)

RELATED LINKS

[david llamas' website](#)[napier university](#)[website](#)[broadband on the run](#)[article](#)[in the softlite article](#)[Edinburgh ^](#)

CATCHER AND THE SPY

From setting up one of Spain's first internet service providers to winning a Software Engineer Award for his research into hidden internet communications, Napier graduate David Llamas is something of a digital pioneer. He tells *Stewart Smith* how he got the intelligence.



Before you moved to Edinburgh, you were already at the forefront of the computing industry in Spain. What did you do there?

I was born in a small village called Sant Cugat, 10 miles from Barcelona. When I finished high school, I started working in jobs related to computers communications and networks. In 1988, I founded my own company called Abaforum. At the beginning the company was focused on telecommunication services founded on a Bulletin Board System (BBS) technology. Later on, it became one of the first Internet Service Providers (ISP) in Spain. I have been employed in the ICT industry since then, involved in a wide range of projects for Siemens, KPNQWEST-KPN, etc, until I commenced formal study at 2001 at Napier University.

I'm interested in everything to do with information hiding techniques for covert communications. Within this subject, I am specialised in covert channels and steganography.

When did you first become interested in computing?

In 1982, I saw an advert on the street for a course about Basic programming language, using Commodore VIC-20 computers. The course was two months long. I enjoyed every single minute of that course, and I was able to finish it in only one month. Accepting a proposal from the school, I became a teacher of my co-students. It was an amazing experience. I have been interested in computing since then.

When did you come to Scotland?

In 1996, I did a course in Leicester for improving my English, and some students and I decided to spend five days visiting Edinburgh and the Highlands. I fell in love with Edinburgh and Scotland in general: people, landscape, weather ... yes, it seems irrational, but one of the main reasons I am here is because I love Scotland's weather (it inspires me a lot!).

What attracted you to studying at Napier?

Napier University is a fantastic place for doing your studies. If I remember rightly, I saw an advert at the cinema, and I thought that it could be a good idea to call and get some information. Apart from that, a good friend in Edinburgh recommended me that University as well. I went to visit the University during the Open Day, and I felt very welcome. It's a modern place, with very up to date view about technology.

How did you come up with the idea for your Covert Channels Analysis project?

I read an article in 1998 about covert communications, and I remember how the author was playing with the idea of passing a message using an innocent media, and how easily those techniques could become undetectable. I panicked thinking about the consequences of a bad use of those techniques, and I decided to read a bit more about it.

How do you feel about winning the award for the project?

I feel more than happy. It has been a fantastic experience. I have no words to thank Dr. William Buchanan, my supervisor, for being so enthusiastic while teaching about research. He has been the key person for the all the success related to this project.

Will you continue to do research in this area?

Yes, I intend to undertake further research in the areas of security and information hiding techniques. In my opinion, this field is under-researched. However, it is important for our society to make progress in this discipline in order to conduct information warfare effectively and to counter cyber-terrorism.

What are your long term career plans?

This research is clearly relevant to governments, defence departments and intelligence agencies, as well as to all organisations that can be affected by industrial espionage. I expect to be involved in this area in the future.

What qualities do you need to be a good software engineer?

Patience: Nowadays, software engineering demands more time to be spent in the design phase. So, the passion for coding needs to be compensated with a good theory background that helps you to finish design (in terms of abstraction phase) before developing any line of code. In addition, it needs to take into account that software design aspects are the foundation of security.

Perseverance: software life-cycle processes are more dynamic and, in my opinion, personal feelings (such as being very happy when you finish a phase, or very sad because you have to start again something that you have been working with for a long time, etc.) shouldn't affect the performance. The best way for avoiding that is considering 'software' as not only code, but a more complex group of processes, and all of them essential. Being perseverant and constant in these procedures will guarantee the control of the software projects.

Collaboration: It is not possible to be good at all aspects related to software engineering. Teamwork is crucial, as well as the participation in public forums for sharing knowledge.

Do you have any advice to people interested in software engineering and computing?

Software Engineering and Computing are very interesting subjects to be involved with. Enthusiasm in software projects is a key issue, so, I would advice to take this into account before other things. Resources and project leaders are major points as well, and in this aspect, Napier University is a clear example about how things should be done.