

Research Statement

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November 2015

Current Activity

My current activity as a researcher is mostly related to my teaching position as an Associate Professor in the Department of Computer Engineering and Information Systems, at *Universidade Lusófona de Humanidades e Tecnologias*. In this context, my main goals are to promote an effective interconnection between teaching and research, through the development of coordinated actions, intended at:

- Promoting the activity developed at COPELABS and the benefits that it can bring to students in terms of their professional and scientific profiles.
- Allowing COPELABS to select and recruit possible candidates for project participation and future research positions.

These goals are pursued through the following activities:

1. Organizing conferences and debates in areas of information technology (1st cycle - BSc and 2nd cycle - MSc), on which I lead students in the process of choosing innovation oriented subjects for their final graduation projects and M.Sc. dissertation themes.
2. Proposing themes and acting as advisor in MSc and PhD projects in my areas of interest.

As examples of concrete realizations of these fields, I highlight the following:

1. Two final graduation projects (3rd year of BSc) I proposed, resulted in publications on intermediate level conferences in the area of virtualization and security, submitted and presented by undergraduate students:
 - Malta, R., Faísca, J., Rogado, J., March 2010, "An Authentication Broker for Virtual Laboratories", *INTED2010 Proceedings*, pp. 5826-5835, ISBN: 978-84-613-5538-9.
 - Gomes, J., Carvalho, T., Faísca, J., Rogado, J., November 2010, "A Web Appliance Implementation: Reducing and Securing Network Traffic in a Virtual Laboratory Environment", *ICERI2010 Proceedings*, pp. 6456-6465, ISBN: 978-84-614-2439-9.
2. I am currently supervising 2 M.Sc. students and 1 PhD student, with the following ongoing projects:
 - "e-Vote: secure voting with the e-ID citizen's card": using e-ID citizen's card for establishing a secure electronic voting framework.
 - "Low Power Hardware Platforms for Parallel Computing": exploring computing effectiveness of recent low power, low cost integrated boards (MSc).
 - "A Personal Cloud Ecosystem": A federated approach for managing the growing set of personal devices and the vast universe of available online services (PhD).

Research Career

My career as a researcher started in 1981, when I integrated a Doctoral Program in Computer Science, that lead to my PhD degree in the area of Computer Architectures and Operating Systems (1985), by the University of Paris VI (Pierre et Marie Curie). The final part of my PhD program was achieved as an invited researcher at the *Institut National de Recherche en Informatique e Automatique* (INRIA - France) where I stayed for 4 years, working in projects in the area of operating systems development and optimization.

After that I left INRIA to follow a spin-off initiative, where I worked for 2 years as an engineer, also in the area of operating systems development. Two years later, I joined the Open Software Research Institute (OSF-RI) in Grenoble (France) and Cambridge (MA, USA), where I worked for 7 years as a Senior Research Engineer. During that period, I played an important role in various in R&D projects related to the investigation and prototyping of novel operating systems architectures based in the concept of micro-kernel (Chorus, Mach 3.0) and HPC cluster systems development (for Intel Paragon architecture), having published several papers and technical reports related to OS architecture optimization and cluster file systems development.

My research career was then interrupted for several years (1997-2005), as I decided to move to the information technology industry, by joining a startup company (Link Consulting) created by INESC (Instituto Nacional de Engenharia de Sistemas e Computadores - Lisbon), where I worked for several years as a team leader, in consulting and development projects in the area of EAI and security. After a few more years in several other IT companies (Cap Gemini, Critical Software) I resumed my academic career, by joining *Universidade Lusófona de Humanidades e Tecnologias* as an Associate Professor.

Since then, I started a project in the area of federated virtual environments (Virtlab) that originated an MSc thesis and a working prototype, currently being used as a teaching environment in several BSc and MSc disciplines. This activity also led to the publication of 2 papers in intermediate level conferences:

- Rogado, J., "VirtLab: Virtual Laboratories in Federated Environments", April 2009, in Research, Reflections and Innovations in Integrating ICT in Education, pages 593-597, Ed. Formatex, ISBN: 978-84-692-1789-4.
- Faísca, J., Rogado, J., "Building Virtual Laboratories in Federated Environments", November 2010, *ICERI2010 Proceedings*, pp. 4061-4070, ISBN: 978-84-614-2439-9.

The results of this project, and the knowledge acquired in the area of federated identity, are at the origin of my current interests in Personal Mobile Authentication and User Centric Identity Management, that I hope will be developed in the two academic projects mentioned above (1 MSc and 1 PhD) , I will be supervising during the next few years.

Future Plans

As for my future research plans, I would be very interested in broadening the following topics:

1. To investigate low power parallel architectures: taking benefit of recent developments in micro board computers, such as the Parallella Board (www.adapteva.com), very low cost and power aggregations of computing resources can be built, that can be used in high end embedded applications or for advanced educational purposes.
- 2.

3. To develop story boards for gamification initiatives related to digital identity in media and information literacy.
4. To investigate the possibilities that mobile devices, coupled with electronic ID cards with cryptographic embedded capabilities may offer to build a new generation of strong personal authentication tokens that can be used in multiple applications requiring a strong, on-the-fly, proof of identity.
5. To manage a sustainable synergy between my academic and research activities.

A handwritten signature in black ink, appearing to read 'J Rogado', centered on the page.

(José Luís de Azevedo Quintino Rogado)