Duarte Nunes

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Summary

Software engineer, always looking for new and challenging problems to solve. Strong background in concurrent programming and kernel programming.

Currently immersed in functional and logic programming (Clojure and miniKanren), distributed systems (Hadoop, Riak, Zookeeper, etc.) and virtualization (Xen and KVM).

Experience

Jun 2012 – *now*

Software Architect, *Nokia Siemens Networks.*

Works as a software architect on large-scale brownfield Java projects concerning the planning and management of large multi-layer optical networks. Responsibilities include: enforcement of architecture constraints, code review, hands-on knowledge sharing workshops (mainly about concurrent programming and software development), design and implementation of infrastructure modules. Currently focused on engineering a concurrent and efficient component to mediate between the planning and evolution of a network and the real-time events generated by it's physical, deployed representation.

Jan 2009 – *now*

Software Engineer, *CCISEL.*

Examples of activities:

- Lecturer at the PROMPT post-graduation on the web services and concurrent programming modules;
- Did research on concurrent programming, developing novel synchronization infrastructures;
- Did research on operating systems with the Windows Research Kernel;
- Consultant for Talaris, producing a Windows device driver for proprietary ATM hardware;
- Trainer at EID during a four-week course on C++ programming tailored for embedded systems programming;
- Consultant for Talaris working on the adaptation of a specialized and proprietary Win32 library for the Linux operating system.

Sept 2011 – Jun 2012 **Software Engineer**, *SAPO*.
Worked as a Software Engineer, using .NET technologies, on the Service Delivery Broker, namely on the engine that exchanges the messages between the client and the service, which provides cross-cutting features such as: data transformation, routing, authentication, authorization, throttling, load balancing, protocol bridging, caching, etc. Refactored the core runtime towards a parallel and asynchronous implementation and developed the distributed throttling and caching features.

Sept 2010 – Nov 2011 **Teacher Assistant of Computer and Software Engineering**, *ISEL*.
Worked as a teacher assistant for software engineering courses, namely on Concurrent Programming, a 5th semester course where students learn threads (using a C implementation of green threads), Java and .NET synchronization, memory models, asynchronous programming and concurrent programming models, and on Software Laboratory, a 4th semester course where students develop a fully-featured Java web application during the whole semester.

May 2011 – Aug 2011 **Independent Contractor**, *Google*.
In the context of the 2011 edition of Google Summer of Code, successfully developed the project "SlimThreading on Mono" with the purpose of enhancing the threading infrastructure of the Mono open source project using a novel synchronization framework (SlimThreading), which, besides being highly efficient, significantly reduces the dependency on operating system services; also refactored the virtual machine implementation of intrinsic locking.

Education

2005 **BS, Computer and Software Engineering**, *Instituto Superior de Engenharia de Lisboa*, *Portugal*.

Thesis

title: Concurrent Programming Infrastructures

description: Obtained the highest grade (20/20) for the final thesis, a project on concurrent programming infrastructures, where he built a user mode scheduler based on the Windows 7 user mode scheduling API and devised a novel technique for user-mode blocking and seamless synchronization of user-mode threads with regular NT threads.

Skills

Disciplines: Concurrent programming, kernel programming, functional programming, virtual execution environments

Programming Languages: C, C++, C#, Clojure, Java, JavaScript, Ruby

Technologies: JVM, .NET, Mono, Windows Research Kernel, Windows Driver Foundation, Linux Kernel, MongoDb, Datomic, X86 Virtualization

Languages

Portuguese	Native or bilingual proficiency
English	Native or bilingual proficiency
Spanish	Professional working proficiency
German	Limited working proficiency
French	Limited working proficiency