Catalin Moraru

✆ (+40727320330)
✉ catalin.me@gmail.com

Education

2010–2011 **Master Degree**, *University POLITEHNICA of Bucharest*, Automatic Control and Computers Faculty.
Area of Study: Distributed Systems
Dissertation title:*Scalable Overlay for P2P Social Networks*

2006–2010 **Bachelor Degree**, *University POLITEHNICA of Bucharest*, Automatic Control and Computers Faculty.
Area of study: Computer Science

2002–2006 **Baccalaureate**, *Mihai Viteazul National College*, *Ploiesti*.
Area of study: Mathematics - Informatics

Professional Experience

2015–Present **Senior Software Engineer**, *OTC Intel Romania*, Bucharest.
- DSLTE Hybrid Access
  - The project aims to create a bandwidth aggregation solution for DSL and LTE WAN access links. The solution is a packet-switched aggregation that benefits from custom MPTCP congestion control to deal with the very different link technologies
  - The skill-set involved Linux TCP stack understanding, advanced performance tuning and debugging at both system and networking level.
  - Part of the team that developed the project from POC to product state.
  - Sustained a demo of the project at Mobile World Congress 2016 as part of the Intel Demo team

2013–2015 **Software Engineer**, *OTC Intel Romania – as a RINF Contingent Worker*, Bucharest.
- AppMigrator
  - Part of a 3 member team that designed and implemented a solution for migrating running applications between Android mobile devices. Applications were virtualized by means of linux-based containers. The migration was seamless not only in terms of downtime, but also in terms of network responsiveness.
  - Based on the different types of applications, different live migration strategies were used (mainly a mix of post-copy and pre-copy migration)
  - Development areas include: virtualization, live-migration, KVM, Multipath TCP, kernel drivers, Qemu C++ development
  - The project is part of a research EU FP7 Consortium with multiple industry and academia partners
  - The project was awarded R&D Project of the year 2016 by ANIS
- Multipath TCP
  - Involved in testing and benchmarking the MPTCP open-source implementation from user-space point of view through applications like VM Migration
  - Involved in patchwork for the existing opens-source implementation and setup of various test environments for MPTCP. A spinoff of this project was the integration of MPTCP for redundancy with an Openstack-controlled cluster deployment as a joined project Intel Cloud Platform Division.

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- Android on ChromeOS
  - Developed a POC of a running Android OS on ChromeOS platform by integrating Qemu with NativeClient. The end result is a way to have virtualized Android applications on ChromeOS. The POC was then later on handed to a product team for further development.
  - The work resulted from the POC was accepted as a presentation at Intel OSTS 2014
- SGX enabling on Openstack
  - Worked with the Intel SGX Romania division to allow the Openstack framework to take advantage of the Intel SGX extension
  - My role involved configuring the Openstack framework in order to better fit an SGX-capable Virtual Machine

2011–2013 **C\C++ Developer**, *Axway Romania*, Bucharest.
- Project: Integrator: highly scalable, "any-to-any" and "many-to-many" transformation engine that offers full support for standard and non-standard document types, direct database read/write, and multiple input, target and reference files in a single transformation routine. Tasks included development, maintenance and continuous integration, remote support sessions on client production environment regarding functional and performance issues
- Project: B2BI: Business to Business Integration application that enables high data availability and consistency. Tasks included maintenance and optimization of a key core component of B2BI, as well as continuing to offer remote support for clients
- During this period I improved my debugging skills as a result of debugging real world distributed systems on product environments in time critical situations.
- I have also increased my ability to internalize new tools and development systems.
- Technologies used:
  - Languages:Java, C, Python, MessageBuilder (Axway proprietary)
  - Development platforms: Linux, Windows, Solaris, HPUX, AIX
  - Tools: Mantise, svn, git, Eclipse IDE, Intellij IDEA, OpenGrok + ctags, Linux env tools, WinDdg, (gdb, strace, netstat, etc.), OracleDB, SQL db, Jenkins, VMWare Workstation, Axway specific monitoring and debugging tools

2010–2012 **Associate Teaching Assistant**, *University POLITEHNICA of Bucharest*,
Automatic Control and Computers Faculty.
Course: Operating Systems
Activities:
- Developed laboratory resources for bachelor students in the 3rd year of study
- Assisted the laboratory classes and guided students towards a better understanding of the theoretical concepts through hands-on tasks
- Helped students to solve basic system programming tasks using both Linux and Windows specific APIs

2010–2011 **C\C++ embedded Developer**, *Virtual Metrix*, Bucharest.
- Project: VMXL4
- Part of a 4 member team that enabled a paravirtualized Linux to run on top of a L4 family microkernel. The project was targeted for ARM platforms: Beagleboard ARM v6 and Pandaboard ARM v7
- During this project I have improved my knowledge of Operating System internals and ARM assembly, and also increased my knowledge of the C language
- Technologies used: git, C/C++, various linux tools (mkfs, objdump, readelf, gdb, uboot), BusyBox, Skyeye simulator, Codesourcery toolchain, Gnu ARM toolchain, Scons python, Wiki, Trac

2008–2009 **Junior embedded C Developer**, *Luxoft Romania*, Bucharest.
- Project: Baystack - OS for layer 2/3 switches products for Nortel
- Involved in maintanance tasks with the following areas from the project: QoS, LDAP, LLDP, SNMP
- Technologies used: C, Wind River Workbench, ClearCase

Patents Co-author

Approved for filing in 2015 — **Mobile device navigation method for finding points of interest**, *Intel ID:122552.*

Filed in 2014 — **Mobile device navigation method for management of large groups**, *Intel ID:117892.*

Certificates

2010 — **Advanced Computer Science and Business Oracle Academy Program**,
University POLITEHNICA of Bucharest,
Certificate of course completion.

2009 — **Cisco Certified Network Associate**, *AcademiaCisco, UPB*,
Certificate of course completion.

Computer skills

Area of expertise
- Deep understanding of client/server programming, systems programming, distributed system applications optimized for performance and scalability
- Strong Linux experience, configuration and administration skills, knowledge of Operating System internals
- Strong knowledge of generic algorithms and distributed algorithms

Programming Languages — C, C++, Python, Java, C#, OpenMP, MPI, OpenGL, Bash Scripting

Operating Systems — UNIX based systems (Linux, HPUX, AIX), Windows, Android, WindRiver

DB Management — MySQL, Oracle

Languages

Romanian	Speaking 5, Writing 5	*Native language*
English	Speaking 4, Writing 3	
German	Speaking 2, Writing 2	

Marked 1-5, where 5 is excellent