

Julien Delange

SENIOR SOFTWARE ENGINEER

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Experience

Amazon Web Services - EC2 Elastic Block Storage (EBS)

Seattle, WA - USA

SENIOR SOFTWARE DEVELOPMENT ENGINEER (SDE III)

Since January 2017

- Technical lead of the Infrastructure team of the AWS EBS service that track and maintain the fleet across all AWS AZs.
- Propose and develop new features for the EBS server (C++) and its supporting tools (Python and Perl) in order to improve EBS volume availability (implementation of conditional volume creation), durability (early detection of slow disks) and prevent system failures before impacting the customer experience.
- Manage and deliver projects across the EBS organization - collaboration with the Stats, Control Plane and Fleet Management teams.
- Author of two patents dedicated on fleet management in a cloud environment

Carnegie Mellon Software Engineering Institute (CMU-SEI)

Pittsburgh, PA - USA

SENIOR MEMBER OF THE TECHNICAL STAFF

2012 - 2016

- Propose, conduct and execute research projects with the Department of Defense and industrial partners. Disseminate research outcomes during conference tutorials, workshop, webinars, blog posts and podcast.
- Develop methods for improvement the design, analysis and implementation of safety-critical systems. Develop methods for automated testing and code coverage analysis (SC, DC and MC/DC). Lead developer of the OSATE modeling platform.
- Collaboration with standardization committees and other research institutes: SAE, OMG, OpenGroup. Main contributor of the SAE AS2-C AADL standard document and lead of the v2.2 revision. Author of the ARINC653 annex for modeling avionics architectures.

European Space Agency

Noordwijk, The Netherlands

SOFTWARE ENGINEER

2010 - 2012

- Technical lead on the ASSERT/TASTE development toolchain for safety-critical software development.
- Device drivers development for Aerospace hardware (LEON 3 processor using a SPARC architecture, MIL-1553 or CAN buses) for real-time embedded operating systems (RTEMS).
- Contribution to international standards, including ECSS E-40, ECSS Q-80 and SAE AS-2C AADL.
- Project review (design + code) of space projects. Experience with static code analyzers and coding standards (MISRA, DO-178B, ECSS).

EPITA (Software Engineering School)

Paris, France

TEACHER AND MASTER DEGREE MANAGER/SUPERVISOR

2007 - 2010

- Management of the embedded/real-time major. Collaboration with industrial partners and supervision of students internships. Several former students are now technical leaders at Google, SpaceX, Sony, VMware.
- Lectures on the following topics: Ada programming, Synchronous languages, safety-critical standards (ARINC653, ISO26262, DO178B), Real-Time Operating Systems (VxWorks, RTEMS), real-time systems modeling.

Mandriva (formerly Mandrakesoft)

Paris, France

SOFTWARE ENGINEER

2005

- Developer on *Pulse* project (automatic installation and deployment)
- Lead developer on the *Aden* project: development of linux-based cybercafe solution.

Education

TELECOM ParisTech (formerly ENST)

Paris, France

PHD IN COMPUTER SCIENCE, EMBEDDED SYSTEMS

2007 - 2010

- Topics: safety and security in distributed, real-time, embedded systems
- **Keywords:** ARINC653, MILS, AADL, DO178B, code coverage, Model-Driven Engineering, automatic code generation
- Design the first open-source ARINC653 and MILS operating-system, POK. It is currently reused in 10+ research projects internationally. <https://github.com/pok-kernel/pok>
- Publication in international conferences (SIGAda09, RTSS08, ...), participation in the AADL standardization committee that eventually leads to the creation of the ARINC653 standardized annex.
- Participation in national, european and international research projects.

Université Pierre et Marie Curie (Paris 6)

MASTER OF COMPUTER SCIENCE

- *Major*: real-time, embedded and distributed systems.
- *GPA*: 15.47/20, graduated with honors
- *Ranking*: 1st in a class of 30

Paris, France

2005 - 2007

Universite du Havre

B.S. IN SOFTWARE ENGINEERING

Le Havre, France

2001 - 2003

Skills

Programming	C, C++, Java, Perl, Python, bash, Ada, ASM, SQL, LaTeX
Testing	Junit, PyUnit, googletest
Real-Time/Embedded Software	VxWorks, RTEMS, DeOS, Ada
Development standards	DO-178B, ECSS, ISO26262, MISRA
Formal Languages	Lustre, Esterel, Petri Nets.
Languages	English (fluent), French (mother tongue), Spanish

Honors & Awards

2015	Andy Award - Serving the Customer , Software Engineering Institute	Pittsburgh, PA
2009	Best Student Paper Award , SIGAda Conference	Tampa, Florida
2007	Research Grant (PhD) , French Ministry of Research	France

Significant Presentations

2016	AADL for Secure & Safe Systems Design & Analysis , Embedded Systems Week	Pittsburgh, PA
2014	Architecture Analysis with AADL - SEI Webinar , Embedded Systems Week	Pittsburgh, PA
2010	POK, an ARINC653-compliant operating system released under the BSD license , 13th Real-Time Linux Workshop	Prague

Significant Publications

BOOKS

- 2017 **J. Delange**, AADL In Practice: Become an expert of software architecture modeling and analysis

BOOK CHAPTERS

- 2014 **J. Delange & B. Lewis**, Digital Avionics Handbook, Third Edition, CRC Press
- 2011 **M. Perrotin, J. Delange & J. Hugues**, Concrete aerospace systems, Wiley-ISTE

COMMERCIAL JOURNALS

- Juin 2012 **Émulation de périphériques réseau avec QEMU ("Emulate network devices using QEMU")**, Linux Magazine France
- May 2012 **Anatomie d'un OS Temps-Réel ("Inside an Real-Time Operating System")**, Linux Magazine France
- 2011 **Implémentation de systèmes critiques dirigée par des modèles ("Model-Driven implementation of safety-critical systems")**, Open Silicium

ACADEMIC CONFERENCES OR JOURNALS

- 2016 **An Architecture-Centric Process for MILS Development**, 2nd MILS Workshop
- 2012 **Design, implementation and verification of MILS systems**, Software: Practice and Experience
- 2009 **Validate, simulate, and implement ARINC653 systems using the AAD**, ACM SIGAda Ada Letters