Expert Engineer – Optimizing Compilers

Antoine Morvan – http://antoine-morvan.fr/

PERSONAL DETAILS

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Misc.	Driving license

WORK EXPERIENCE

2019 – 2021   **Expert Engineer** – *Askelys – Rennes*
- Tech lead over DataNavigator: DB query abstraction for non programmers
- Typescript library (NodeJS + Webpack) for querying SPARQL/SQL; Supervising dev team (UI VueJS with UX)
- Backend Node.js (Express.js, TypeORM, io-ts) & client API; Auth0 access management
- SysAdmin OVH (DNS, Jenkins, Sonarqube, Verdaccio, OpenVPN, CodiMD, Prod/RC servers, SPARQL)

2017 – 2019   **Research Engineer** – *IETR / INSA Rennes – VAADER Team*
- Technical coordination within the CERBERO European project
- Tech Lead over PREESM: scheduling/mapping/memalloc, scientific & technical communication, refactoring, etc.
- Rewrite & implement Float-to-Fix algorithm in GeCoS for patent (artefact ANR)

2016 (Jan - Dec)   **Expert Engineer** – *Echoes-Labs – Rennes*
- Design and Implementation of Tools for Automated Software Modernization
- Migration from prorietary Java/JS framework to Spring MVC (99.5% automated)
- Software code audit of web applications (AngularJS, Spring, Hibernate)
- Assisting the Setup of a Software Factory (Jenkins, Redmine, Git)

2013 – 2014   **Research Engineer** – *Université de Rennes 1 – CAIRN Team*
- Tech Lead over GeCoS (C compiler research prototype), including communication
- Tech coordination for ALMA European project (Compiling Scilab for heterogeneous multicore reconfigurable architectures)
- Automatic Tiling, Vectorization, HLS specific code gen, optimisations (with HW specs as input)

2009 – 2012   **Research Engineer (PhD)** – *INRIA Rennes – CAIRN Team*
- Nano 2012 project S2S4HLS (Source-to-source for High-Level Synthesis) with STMicroelectronics
- Exhibit efficient code structure and memory layout, improve applicability of nested loop pipelining
- Implementation of `ompVerify`: automatic checking of OpenMP #pragmas on parallel for loop

2009 (Feb - Sep)   **Research Engineer (internship)** – *INRIA – CAIRN Team*
- Design and implementation of a FSM generator for *scanning* loops represented as polyhedra

EDUCATION

2009 – 2013   **Ph.D in Computer Science** – *ENS Cachan, antenne de Bretagne – Bruz*

2004 – 2009   **Master's Degree in Computer Science** – *IFSIC / Université de Rennes 1 – Rennes*

SCIENTIFIC PUBLICATIONS (SELECTED)

Polyhedral Bubble Insertion: A Method to Improve Nested Loop Pipelining for High-Level Synthesis. Extension of the applicability of nested loop pipelining for high-level synthesis in the context of source-to-source automatic compilation , IEEE TCAD, 2013.

Runtime Dependency Analysis for Loop Pipelining in High-Level Synthesis. Implementation of a source-to-source transformation for applying superscalar processor pipeline stalling techniques for High-Level Synthesis , DAC, 2013.

ompVerify: Polyhedral analysis for the OpenMP Programmer. Implementation of a tool for editing C/C++ programs annotated with OpenMP pragmas, providing instant feedbacks about the legality of annotations within Eclipse editor , IWOMP, 2011.

SKILLS

Prog. Paradigms	Imperative, procedural, object oriented, promises, functional, structural, logic, constraint, parallel (memory shared, transactional), query
Prog. Languages	Java, C, C++, scripts bash & shell, Latex, Javascript, Typescript, Python, Markdown, Groovy, PHP/HTML/SQL, Tom/Gom, Xtend, Xtext, YACC/Lex (bison/flex)
IDE & tools	Eclipse, Git, VSCode, Docker, SVN, Make, CMake, Gradle, Maven, Jenkins, Travis CI, Github, Sonarqube, Redmine, Nexus, vi, Codi/HackMD, EMF/Ecore, Node.js/NPM, Webpack, Auth0, Express.js, TypeORM, io-ts
Servers	LAMP, SSH, DNS, DHCP, OpenVPN, IPTABLE, Squid, SFTP, Tomcat
OS	UNIX / Linux (Ubuntu, Debian, ArchLinux), Windows
Languages	**French** (mother tongue), **english** (Full professional proficiency), german (notions).