

Sylvain Henry


Curriculum vitae


EDUCATION


- 2013** .. • **Ph.D in Computer Sciences**
@ University of Bordeaux / INRIA, 4 years
Topic: "Programming Models and Runtime Systems for Many-Core and Heterogeneous Architectures".
- 2009** .. • **Computer engineering diploma**
@ ENSEIRB-MATMECA, 3 years
High-performance computing (HPC) specialization
- 2006** .. • **Preparatory course for "Grandes écoles"**
@ CPGE Camille Guérin (Poitiers), 2 years
- 2004** .. • **French scientific baccalauréat**
@ Lycée Pilote Innovant (Futuroscope), Jaunay-Clan, 3 years
French baccalauréat S (scientific) with mention ("Bien"), equivalent to A levels.


TEACHING EXPERIENCE

- 2013** .. • **TCP/IP Networking**
@ ENSEIRB-MATMECA Info (year 2)
Course (27 hours)
- 2013** .. • **GPGPU Programming**
@ ENSEIRB-MATMECA Info (year 3)
Course (8 hours) – Practical sessions (8 hours)
- 2013** .. • **Compilation**
@ ENSEIRB-MATMECA Info (year 2)
Practical sessions (16 hours)
- 2012** .. • **System & Networking**
@ ENSEIRB-MATMECA Info (year 2)
Project (32h): Development of a "mpirun"-like application launcher with additional distributed shared memory support
- 2012** .. • **Functional programming**
@ ENSEIRB-MATMECA Info (year 1)
Project (30h): Lisp automatic solver for a "minesweeper" game
- 2012** .. • **Unix, Bash, C**
@ ENSEIRB-MATMECA Elec (year 1)
Practical sessions (8 hours)
- 2011** .. • **C, OS (Linux), STM**
@ ENSEIRB-MATMECA Telecom (year 2)
Project (64h): Development of a software transactional memory (STM) kernel module for Linux (tested within QEMU).

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* Birthday: March 14, 1986

SOFTWARE DEVELOPMENT SKILLS

Domains of interest

- System programming
- Functional programming
- Many more: compilers, ray-tracing. . .

Programming languages

- Expertise: **Haskell, C**
- Experience: **X86 asm, HTML/CSS/JavaScript**
- Past experience: Scala, Java, D, C++, OCaml, SQL, Delphi/Pascal, Lisp, XML. . .
- Poor experience: Ruby, PHP, Lua. . .

Frameworks, tools, etc.

- Major contributions to **Haskell GHC compiler**
- System programming with Linux
- HPC: **OpenCL, CUDA, MPI, OpenMP**
- GIT, \LaTeX , POV-Ray. . .

MANAGEMENT EXPERIENCE

- 2021-2025** .. • **Lead the GHC team at IOG**
Up to 4 direct reports

COMMUNICATION SKILLS

- French: native
- English: fluent
- Notions of German, Spanish and Japanese

HOBBIES

- Playing music (drums, guitar)
- Reading
- Programming
- Dancing (lindy hop)
- Biking and hiking

PREVIOUS JOBS AND INTERNSHIPS

2019-2025	• • IOG	Haskell
	Since 2019 I have been working on the GHC Haskell compiler for IOG	
2016-2019	• • Self-employed	Haskell, C, HTML/JavaScript, x86-64, Arduino
	Between 2016 and 2019 I have been working on my own projects and contributing independently to GHC.	
2014-2015	• • Postdoc at Intel Exascale Computing Research Lab	Haskell, C, Lua, x86-64
	@ Versailles, 2 years (January 2014 - December 2015)	
	- Value profiling module in C and Lua for MAQAO (Modular Assembly Quality Analyzer and Optimizer): use binary instrumentation (x86_64 ISA) to characterize loops (e.g. cycles per iteration) and function calls (e.g. detect specialization or memoization opportunities).	
	- Haskell interface for MAQAO and HappStack based Web interface to navigate into disassembled binary files.	
2009-2013	• • Ph.D at INRIA Bordeaux – Assistant professor at ENSEIRB-MATMECA	C, OpenCL, Haskell
	@ INRIA Bordeaux Sud-Ouest, 4 years (September 2009 - November 2013)	
	- OpenCL implementation (in C) called SOCL on top of the StarPU runtime system (runtime system written in C for heterogeneous architectures), now included into StarPU's distribution.	
	- Prototype front-end for StarPU using implicit parallel functional programming to create task graphs (in Haskell).	
	- Runtime system prototype in Haskell for heterogeneous architectures (independent of StarPU): ViperVM, presented at FHPC'13 workshop.	
2009	• • Internship at Thales Avionics	C, IBM CELL/BE
	@ Thales, Pessac, 7 months (February 2009 - August 2009)	
	- Adaptation of a low-level high-performance communication middle-ware used in radars to the IBM CELL/BE processor – development in C on a cluster composed of 8 PlayStation 3 (using YellowDog Linux OS).	
2008	• • Internship at MediaLog	Delphi 5, FireBird
	@ MediaLog, Mérignac, 3 months (June 2008 - August 2008)	
	- Optimizations for a client-server medical application (in Delphi 5): stored procedures for FireBird, etc.	
	- Implementation of a mechanism to ensure coherency of a patient form in the case of concurrent modifications.	
2007	• • Internship at AEI	PHP, SyncML
	@ AEI, Bordeaux, 1 month (July 2007)	
	- Development of a contact synchronization module – using SyncML and PHP – for Vtiger CRM (Customer Relationship Management software).	

PUBLICATIONS AND WRITINGS

Latest	• • Latest writings are on my blog: hsyl20.fr
2023-08	• • Stretching the Glasgow Haskell Compiler: Nourishing GHC with Domain-Driven Design Workshop - Funarch 2023 - August 2023 - USA (Seattle) With Jeffrey M. Young and John Ericson
2022-05	• • Modularizing GHC Self published (white paper) With John Ericson and Jeffrey M. Young
2014-08	• • Toward Automatic OpenCL Multi-Device Support Conference - Euro-Par 2014 - August 2014 - Porto (Portugal) With Alexandre Denis, Denis Barthou, Marie-Christine Counilh and Raymond Namyst
2013-11	• • Programming Models and Runtime Systems for Heterogeneous Architectures Ph.D Thesis - November 14, 2013 - University of Bordeaux

- 2013-09 . . • ViperVM: a Runtime System for Parallel Functional High-Performance Computing on Heterogeneous Architectures
Workshop - FHPC'13 - September 23, 2013 - Boston, MA (USA)
- 2013-08 . . • SOCL: An OpenCL Implementation with Automatic Multi-Device Adaptation Support
Report - Inria Research Report - August 22, 2013
With Alexandre Denis, Denis Barthou, Marie-Christine Counilh and Raymond Namyst
- 2012-12 . . • Programmation multi-accélérateurs unifiée en OpenCL
Journal - Techniques et Sciences Informatiques 31, 8-9-10 - December 2012
With Alexandre Denis and Denis Barthou
- 2011-05 . . • Programmation multi-accélérateurs unifiée en OpenCL
Conference - RenPAR'20 - May 2011 - Saint Malo (France)