

Hugo Venturini

Software Engineer, PhD

185, rue Saint-Charles
75015 Paris, France
✉ +33 (0) 6 16 21 72 59
✉ hugo.venturini@gmail.com

Experience

Since aug 08

Software Engineer, *3DS Dassault Systèmes*, Paris, France.

subject: PLM memory models, design and code optimization

Analysis, Design, Implementation and Evaluation of memory models applied to Product Lifecycle Management: PLM concepts.

- Formal definition of a PLM Model Calculus based on a structural description of volatile and persistent data and an adaptation of the situation calculus.
- Implementation (C++) of the new memory model an API provided to V6 applications (CATIA, DELMIA, SIMULIA and ENOVIA)
- Release of new API and support to existing library and kernel

Jan 05 – Jul 08

Research Engineer, *STMicroelectronics/Verimag*, Crolles, France.

subject: Code optimization and generation, Debug Information

Conception and validation of a method for the non-transparent debugging of optimized code

- **Analysis** of the set of modules and optimizers (>100) provided by the MMDSP+ C Compiler (CoSy-based compiler)
- Instrumentation of optimizers in C, C++ and CoSy-C, **enhancement** of the compiler e.g. *dead code elimination, common subexpression elimination, code sinking and hoisting, table access to pointer arith., hardware loop rewriting, loop reversal, software-pipelining*
- **Implementation** of extensions (commands and internals) to debugger Machine and Command Line Interfaces in C++
- **Design** of the corresponding Eclipse Plug-in developed by the IDTEC Team at STMicroelectronics

Sep 03 - Sep 04

Research Assistant, *Verimag*, Grenoble, France.

with *Pr Jean-François Monin*

- Analysis of the Ambient-calculus semantics
- Definition and implementation in C of a **translation function** to IF-2.0

Sep 02 - Jun 03

Research Assistant, *University of Texas*, Austin, TX, USA.

with *Thomas Wahl and Dr Allen Emerson*

- Implementation in Java of a translation function:
from an ad-hoc automata descriptive language to NuSMV

Sep 01 - Jul 02

Internship Student, *Verimag*, Grenoble, France.

with *Pr Yassine Lakhnech*

- Evaluation of the π -calculus semantics for a translation in IF-2.0
- Proposal of a translation from a restricted π -calculus into IF-2.0

Education

Sep 04 - Mar 08

Ph.D. Computer Sciences, *Verimag/STMicroelectronics*, Grenoble, France.

Title: Non-Transparent Debugging of Optimized Code

advisers: *Pr. Jean-Claude Fernandez and Dr. Miguel Santana*

Graduation Date: March 28th, 2008

Sep 02 - Jun 04

M.S. Computer Sciences, *ENS-Lyon, Université Joseph Fourier*, Grenoble, France.

"Systems and Software" with honors

Sep 98 - Jun 02

B.S. Computer Sciences, *Université Joseph Fourier*, Grenoble, France.

Major: Computer Sciences, minor: Mathematics, with honors

Teaching

- Since Mar 09 **Principles of Programming Languages**, École Polytechnique, Palaiseau, France.
Lab. language: Java
- Jan 06 - Jun 06 **Software Analysis, Design and Validation**, ENSIMAG, Grenoble, France.
UML, OOP (Java and C++), SDLC
- Sep 05 - Jan 06 **Introduction to UNIX**, IUT GTR, Grenoble, France.
Basic command line use and Shell scripting

Activities

- 2010 Program Committee member: SCOPES'10 (ACM SIGBED, Artist and EDAA)
- Since Nov 08 Active member of 3DS Dassault Systèmes internal think-tank
Team work, Decisions and Delegation
- Mar 09 - Sep 09 Supervision of J-P Sahut-D'Izarn's master thesis, *Definition and Implementation of PLM Core Calculus*, 3DS Dassault Systèmes and Supelec, France
- Jun 09 - Sep 09 Supervision of Geoffroy Carrier's internship, *PLM Meta-Model Memory Use Optimization*, 3DS Dassault Systèmes, France
- Jun 07 - Jun 08 Moderation of the news.announce.conferences Usenet Group
- Sep 06 - Jun 07 Animation of the weekly graduate students seminar,
Verimag, France (~30 students)
- Sep 05 - Jun 06 Supervision of Ning ZHU's master thesis, *From Ambient Calculus to IF-2.0*,
Université Joseph Fourier, France

Publications

- [1] Hugo Venturini, Frédéric Riss, Jean-Claude Fernandez, and Miguel Santana. A fully-non-transparent proposal to the code location problem. In *Proceedings of SCOPES '08: The 11th International Workshop on Software and Compilers for Embedded Systems*, march 2008.
- [2] Hugo Venturini. *Le débogage de code optimisé dans le contexte des systèmes embarqués*. Ph.D. Manuscript, Université Joseph Fourier, 2008.
- [3] Hugo Venturini, Frédéric Riss, Jean-Claude Fernandez, and Miguel Santana. Non-transparent debugging for software-pipelined loops. In *Proceedings of CASES '07: The 2007 international conference on Compilers, Architecture, and Synthesis for Embedded Systems*, pages 23–32, oct 2007.
- [4] Laurent Gerard, Denis Pilat, Frederic Riss, Sylvaine Laheurte, Miguel Santana, and Hugo Venturini. IDBug technology, benefits and added-value. White Paper, STMicroelectronics, F-38921 Crolles France, jul 2005.
- [5] Hugo Venturini, Jean-Francois Monin, and Marius Bozga. Ambient-calculus to IF, a language for asynchronous real-time systems. Technical Report TR-2005-10, Verimag, 38610 Gières, France, 2005.