

D^r Basile STARYNKEVITCH
senior Computer Science research engineer
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Expertise

- static source code analysis, compilation and garbage collection
- mastering several programming languages (C, Ocaml, C++, Go, Common Lisp, Scheme, Prolog, ...)
- design and implementation of domain specific languages (homoiconic, reflexive, meta-programmed)
- Linux programming (system calls; and using Pthreads, GTK, Qt, Sqlite, MySQL & PostGreSQL, ...)
- symbolic artificial intelligence
- 172K on StackOverflow (top 0.06% overall)

Significant achievements

bismon (2018-..., work in progress). A free software persistent (homoiconic, reflexive, multi-threaded) monitor framework for whole program static source code analysis, generating GCC plugins (funded : CHARIOT 2018-2020 and DECODER 2019-2021 H2020 projects). See github.com/bstarynk/bismon/

GCC MELT (2006-2017) design and implementation of a Lisp-like domain specific language to extend and customize the GCC (Gnu Compiler Collection) compiler for static source code analysis purposes; funded thru GGCC (ITEA8) and OpenGPU (French FUI) research projects

GCC (2008-2014?) contributions to the free software GCC project (of more than five millions lines), notably its plugin infrastructure and (with Jérémie Salvucci) GTY-ed garbage collector. Good knowledge of GCC middle-end (Gimple & SSA) layer.

INRIA 2004 - Sabbatical year in Cristal (Ocaml) team at INRIA, working on persistence and JIT compilation in Ocaml.

POESIA (2002-2003) architect and technical coordinator of a free software, E.C. funded, internet content filtering project. Implemented in Ocaml its central monitor.

TWO (1999-2001) a static source code analysis (European FP5) project : contributions to scalar lattices (abstract interpretation) & development of a specialized generational copying garbage collector for and in C++.

research proposals submission of European and national (French) research proposals. Contribution to CHARIOT proposal (funded, running 2018-2020). With Armand Puccetti and Franck Védrine (CEA), driven and coordinated the DECODER proposal (funded in ICT-16 call of H2020, starting in Q1 2019, mixing static analysis of source code, machine learning, natural language processing). Driven and coordinated the OPENSLEDGE proposal (FETOPEN, mixing static analysis & NLP); GlobalGCC (ITEA8), OpenGPU (French FUI), POESIA (SIAP) etc...

misc. contributed to other projects before 2000 (software engineering, symbolic artificial intelligence); list available upon request.

Work experience

- CEA since october 1985, research engineer at *CEA* [French *Alternatives Energies and Atomic Energy Commission*]. 1985-1999 : in its DRN (direction des réacteurs nucléaires; nuclear reactors division); 1999-now : in its DRT (direction de la recherche technologique): technological research division).
- INRIA in 2004, sabbatical year at INRIA [French National Institute for computer science and applied mathematics] (Cristal team)

Education

- Doctorat **PhD in CS** (artificial intelligence), Paris Univ. 6 *LIP6* - december 1990: Doctorat de l'Université Paris 6. *Expliciter et Utiliser les Données et le Contrôle pour les Connaissances par des Métaconnaissances*. (explicit and use data and control for knowledge with metaknowledge).
- DEA (Master's in CS, 1984) "diplôme d'études approfondies en infomatique, LIARFA", Univ. Paris 6
- ENS Cachan (1980-1985) graduated from **École Normale Supérieure de Cachan**¹, ("section A_1 , mathématiques"). Also license and maîtrise de mathématiques at Université Paris 11 Orsay.

significant publications

- report (october 2018-2020) *draft* technical report: *Specialized Static Analysis tools for more secure and safer IoT software development (Bismon documentation)* draft D1.3 deliverable of CHARIOT
- DSL2011 conf. (IFIP working configerence on Domain Specific Languages, Bordeaux, sept.2011) *MELT - a Translated Domain Specific Language Embedded in the GCC Compiler*
- GCC summit 2007 (july 2007, Ottawa) *Multi-Stage Construction of a Global Static Analyzer*
- MetaOcaml 2004 workshop: *Ocamljit - a Faster Just-in-Time Ocaml implementation*
- CORESA 2003 with Mohamed Daoudi: *Architecture du système Poesia de filtrage de contenu Internet* (architecture of the Poesia system for Internet content filtering)
- WAPATV 2001 with Dominique Guilbaud, Eric Goubault, Anne Pacalet, and Franck Védrine: *A Simple Abstract Interpreter for Threat Detection and Test Case Generation*

Identity

Basile Starynkevitch ♂
born on August 1st, 1959 (59 years old in 2018), at 12000 RODEZ, France; *French citizen*
male, married, father & grand-father

Ⓔ_X-ed on November 6, 2018 from git commit 17840ce8aceabbb8

¹ENS Cachan is moving in 2019 and renamed as École Normale Supérieure de Paris-Saclay.