

Philippe Meunier

Computer Science and Technology Programme
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French citizen

Research Interests

Programming languages, their semantics, flow analyses and type systems, with emphasis on functional and object-oriented programming languages. In general I am interested in both the theoretical and practical aspects of using static program analyses and other formal methods to help programmers write more reliable software. My current research focuses on developing an abstract interpretation framework to create a graphical static debugger for the Racket functional programming language, with the goal of providing better analysis tools to software engineers.

Education

Ph.D., Computer Science, Northeastern University, Boston, MA, USA 2001-2006
Dissertation: *Modular Set-Based Analysis from Contracts*, under the supervision of Matthias Felleisen.

M.Sc., Computer Science, Rice University, Houston, TX, USA 1999-2001
Thesis: *Selector-based versus Conditional-constraint-based Value-flow Analysis of Programs*, under the supervision of Matthias Felleisen.

Engineering degree, Télécom ParisTech, Paris, France 1991-1994
Major in Computer Science with emphasis on computer architecture and operating systems.

Higher School Preparatory Classes, Lycée Kléber, Strasbourg, France 1988-1991

Academic Employment

Assistant Prof., Comp. Sci. and Tech. Prog., UIC, Zhuhai, China 2015-present
Convener and teacher for courses on Java programming, operating systems, and compiler design for Computer Science majors. Convener and teacher for an IT course for humanities, science, and business students (900 to 1000 students per semester). Also taught Android application development and linear algebra courses to CS majors, and C++ programming to Financial Mathematics students.

Assistant Prof., Dept. of CS and Eng., Ewha Womans Univ., Seoul, South Korea 2010-2015
Taught courses on C programming, C# programming, Java programming, advanced Java programming, the theory of programming languages (including functional and logic programming with SML and Prolog), Unix (Linux), engineering mathematics (differential equations, Laplace and Fourier transforms), and automata theory to Computer Science majors.
Lead yearly ten-day summer course on Web Security in Paris for Ewha students in cooperation with French university EPITA. Also established a permanent student exchange program between Ewha and EPITA.

Lecturer, School of ICT, SIIT, Bangkok, Thailand 2006-2010
Taught courses on Java programming, the theory of programming languages, compiler design,

and software engineering to both Computer Science and Information Technology majors. Organized seminar on current research in the field of programming languages for senior CS students.

Lead Instructor, St. Joseph's Academy, Baton Rouge, LA, USA Jul. 2003
Conducted week-long programming-intensive *TeachScheme!* workshop for high-school teachers on how to best teach computer program design at the high-school level.

Lecturer, Math. Sciences Dept., Univ. of Malawi, Zomba, Malawi 1996-1998
Taught courses on algorithm design and complexity, and the Pascal and C programming languages to CS majors, introductory IT courses to non-majors, plus courses on microprocessor and computer architecture, and operating systems and networks, to adult learners.

Other Employment

Intern, NASA Ames Research Center, Moffett Field, CA, USA Sep.-Nov. 2005
Developed C and OCaml code to create a workload-adaptive numerical abstract domain for the *C Global Surveyor*, a static software analyzer based on abstract interpretation used for verifying the C code of NASA's Mars missions.

Network Engineer, EUnet France, Paris, France Jan.-Aug. 1999
Managed French sector of IP network for largest (at the time) Internet Service Provider for businesses in Europe: access and core routers installation and management (Cisco), servers installation and management (DNS, email, web, ssh, etc., on Unix / Linux), network design and monitoring, coordination with telecommunications companies and other Internet Service Providers, customer support.

Network Engineer, Metissacana, Dakar, Sénégal Jun. 1996
Installed first cybercafé in Western Africa.

Network Engineer, EUnet France, Paris, France Mar.-Aug. 1996
Developed monitoring software to automatically detect link-level network faults for largest (at the time) Internet Service Provider for businesses in Europe. Managed routers and servers security.

Intern, Télécom ParisTech, Paris, France Aug.-Sep. 1995
Modified *Parallel Virtual Machine* library for use with experimental network interface card to allow multiple Sun workstations to share physical memory (*WARPmemory* project).

Software Engineer, GDI Simulation, Suresnes, France Sep. 1994-Aug. 1995
Benchmarked digital signal processors to be used in weapon simulators (as part of the then compulsory French military service).

Intern, Télécom ParisTech, Paris, France Jul.-Aug. 1994
Modified C compiler and wrote non-preemptive thread library for Unix SVR3 running on experimental computer with Motorola 88100 processor, serving as building block for a multi-processor computer simulator.

Intern, University of Colorado, Boulder, CO, USA Jul.-Dec. 1993
Ported molecular dynamics optimization software (Fortran and C programming languages) from Intel iPSC/860 hypercube computer to Kendall Square Research KSR1 virtual shared memory parallel computer.

Refereed International Journal Publications

P. Meunier, R. Findler, P. Steckler, M. Wand. *Selectors Make Set-Based Analysis Too Hard*. Journal of Higher-Order and Symbolic Computation (HOSC), vol. 18(3–4), pp. 245–269, December 2005.

Refereed International Conference Publications

P. Meunier, R. Findler, M. Felleisen. *Modular Set-Based Analysis from Contracts*. In Proceedings of 33rd Symposium on Principles of Programming Languages (POPL), Charleston, SC, USA, January 2006.

D. Herman, P. Meunier. *Improving the Static Analysis of Embedded Languages via Partial Evaluation*. In Proceedings of Ninth International Conference on Functional Programming (ICFP), pp. 16–27, Snowbird, UT, USA, September 2004.

P. Meunier, D. Silva. *From Python to PLT Scheme*. In Proceedings of Fourth Workshop on Scheme and Functional Programming, pp. 24–29, Boston, MA, USA, November 2003.

P. Meunier, R. Findler, P. Steckler, M. Wand. *Selectors Make Set-Based Analysis Too Hard*. In Proceedings of Second Workshop on Scheme and Functional Programming, pp. 54–64, Florence, Italy, September 2001.

I. Demeure, U. Finger, P. Meunier, C. Siegelin. *WARPphos: a Hierarchical Hardware and Software Shared Memory System for a Network of Workstations*. In Proceedings of International Conference on Telecommunication, Distribution, Parallelism (TDP), Cagliari, Italy, May 1996.

I. Demeure, R. Cabrera-Dantart, P. Meunier. *Phosphorus: a Distributed Shared Memory System on Top of PVM*. In Proceedings of EUROMICRO95, Como, Italy, September 1995.

Refereed National Conference Publications

U. Finger, P. Meunier, G. Mouret, C. Siegelin. *WARPmemory: des stations de travail au multiprocesseur*. Actes du Quatrième Symposium sur les Architectures Nouvelles de Machines, Rennes, France, December 1995.

Miscellaneous Conference Publications

D. Silva, P. Meunier. *From Python to PLT Scheme*. The Python Conference (PyCon), Washington D.C., USA, March 2004.

R. Cabrera-Dantart, I. Demeure, P. Meunier. *Phosphorus: Adding Shared Memory to PVM*. First European PVM Users' Group Meeting, Rome, Italy, October 1994.

Technical Reports

R. Cabrera-Dantart, I. Demeure, P. Meunier, V. Bartro. *Phosphorus: a Tool for Shared Memory Management in a Distributed Environment*. Technical report 95-D003, Département Informatique, Ecole Nationale Supérieure des Télécommunications de Paris, Paris, France, 1995.

Invited Talks

An Abstract Interpretation Framework for the Scheme Programming Language. Korea Advanced Institute of Science and Technology, Daejeon, South Korea, October 2010.

An Abstract Interpretation Framework for the Scheme and Java Programming Languages. Thailand Research Fund Annual Conference, Cha-Am, Thailand, October 2009.

Modular Set-Based Analysis from Contracts. Department of Computer Science, Brown University, Providence, RI, USA, June 2006.

Modular Set-Based Analysis from Contracts. Church Project Seminar, Computer Science Department, Boston University, Boston, MA, USA, February 2004.

MrFlow: Why MrSpidey Failed. PLT Day, College of Computer and Information Science, Northeastern University, Boston, MA, February 2002.

Research Grants

2008-2010. Research grant of 217,500 Baths from the Thailand Research Fund for a two-year project entitled “An Abstract Interpretation Framework for the Scheme and Java Programming Languages”.

Supervision of Undergraduate Projects

2015-present. Supervising CS year-long individual senior projects at UIC: distributed search engine, Android mobile applications, Ruby to Java as well as Java to C and C to Java source to source compilers, Javascript interpreter, firewall software implementation, reactive functional programming.

2010-2015. Supervised CS semester-long individual senior projects at Ewha: multiple Android mobile applications.

2006-2010. Supervised IT and CS year-long senior team projects at SIIT: multiple game programming projects, web-based applications, mobile phone applications, distributed search engine, project on Domain Name System security, and project on an object-oriented library for purely functional data structures.

Mar. 2003-Jun. 2004. Supervised independent undergraduate research project of Ethan Aubin, to develop a hashconsing library to automatically fold recursive types in the presence of subtyping; used in the MrFlow static debugger of the DrScheme programming environment.

May 2002-Aug. 2004. Supervised independent undergraduate research project of Daniel Silva, to implement the Python programming language in the DrScheme programming environment.

Committees and Other Professional Activities

2010. Program committee member, The International Conference on Information and Communication Technology for Embedded Systems, Pathumthani, Thailand, 2010.

2008-2010. Chairperson of the Computer Committee of the School of ICT, SIIT, overseeing the development of systems and networks within the school.

2008-2010. Member of SIIT's institute-wide Computer Committee and SIIT's Energy Conservation Committee.

2007-2008. Member of SIIT's International Relations Committee.

1997-1998. Treasurer of the Mathematical Sciences Department, Chancellor College, University of Malawi.

1997-1998. Representative of the University of Malawi on the National Steering Committee of the Malawi Sustainable Development Network Programme, a project of the National Research Council of Malawi and the United Nations Development Programme to provide Internet access in Malawi.

Software

Author of MrFlow, a static graphical debugger for the R5RS Scheme programming language (plus generative data structures) that used a set-based value-flow analysis to automatically detect software bugs. Worked as an plug-in tool for the DrScheme programming environment.

Operating Systems

Unix (OpenBSD, Linux), Microsoft Windows 7 and 10, Cisco IOS.

Programming Languages

Fluent in C, Java, and Scheme / Racket; good knowledge of C#, SML, OCaml, Unix shell; knowledge of C++, Prolog, Haskell, Perl, Python, Pascal, Basic, Fortran, Motorola 68000 and Sun SPARC assembly languages, etc.

Natural Languages

Fluent in French and English.