

Axel Simon

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Date of Birth: April 9th, 1976
Born in: Osnabrück, Germany
Father: Gerhard Simon
Mother: Beate Simon, née Klein



Objective

Developing theory and artifacts to design programming languages and program analyzes with the goal of making programming more productive and the resulting programs more maintainable, reliable, and performant.

Développement de théories et logiciels pour concevoir des langues informatique et des analyses statique avec l'objectif de rendre la programmation plus effective et les programmes résultant plus fiable et rapide.

Professional Experience

Jan 2010 – Dec 2014	Emmy Noether position at the Technical University Munich, Germany <i>le programme Emmy Noether un moyen d'obtenir le droit d'être professeur et un remplacement de l'Habilitation à diriger des recherches en France</i>
Nov 2007 – Dec 2009	PostDoc position at École Normale Supérieure in Paris, France
Jul 11, 2007	Ph.D. awarded
Dec 15, 2006	passed Ph.D. viva with no corrections
Oct 2005 – Sep 2007	Research Assistant at the University of Kent, Canterbury, UK <i>troisième cycle universitaire</i>
May 2004 – Jun 2004	4 week visit to École Polytechnique, Lozère, France
Jul 2003 – Sep 2003	8 week visit to École Polytechnique, Lozère, France
Oct 2001 – Sep 2005	part-time (37%) Teaching Assistant, part-time (63%) enrolled in PhD programme at the University of Kent, Canterbury, UK
Oct 1995 – Dez 2000	obtained degree “Diplom Informatiker”, RWTH Aachen, Germany <i>deuxième cycle universitaire</i>

Research Related Activities

In the past, I have refereed papers for various conferences such as POPL, PLDI, SAS, VMCAI, CAV, APLAS, NFM and others. I have been on the committee of the BYTECODE 2007 and NSAD 2011 and several smaller workshops. I will chair NSAD 2014.

Seminar Organization

Furthermore, I have initiated and coordinated the following Dagstuhl Seminar applications:

Jan 2012	Dagstuhl Seminar 12051: Analysis of Executables: Benefits and Challenges (with Andy King, Canterbury, UK; Alan Mycroft, Cambridge, UK, Thomas Reps, Wisconsin-Madison, USA; and Andrea Flexeder, TU Munich, Germany)
Jun 2014	Dagstuhl Seminar 17-0113: Challenges in Analyzing Executables: Scalability, Self-Modifying Code and Synergy (with Roberto Giacobazzi, Verona, Italy; and Sarah Zenou, EADS, Paris, France)

Invited Talks

The following venues officially invited me to give a talk:

Jul 2003	Haskell's Implementer's Meeting; Design of a GUI library for Haskell
Sep 2010	Formal Methods for Industrial Critical Systems (FMICS); Designing a Type System based on Static Analysis Principles
Jan 2014	ACM SIGPLAN Program Protection and Reverse Engineering Workshop (PPREW); The GDSDL toolkit: Generating Frontends for the Analysis of Machine Code

Coding Experience

Amongst many smaller projects, I have participated in creating the following code bases:

language	kLOC approx.	own contribution	nature of project
Pascal	17	100%	hog feeding system and air conditioning
Haskell	55	90%	Gtk2Hs, a library that wraps the Gtk+ GUI toolkit
Haskell	25	100%	static analyzer for C programs, PhD work
C++	12	100%	TVPI abstract domain
Java	55	10%	abstract analyzer for executables
SML	25	50%	type inference, code generation for DSL compiler

Supervision

Currently, I am supervising three PhD students:

- Holger Siegel: Shape Analysis using Numeric Domains, expected submission: summer 2014
- Bogdan Mihaila: Reachability Analysis of Low-Level Code, expected submission: winter 2014
- Julian Kranz: title to be determined, started July 2013

Research Grants

During my time at the University of Kent, I gave regular feedback to research proposals from peer academics. Besides that, I co-authored the following successful grants:

Back to Bits

Oct 2005 – Sep 2007 | EPSRC EP/C015517/1 responsive mode grant, value £105,157

Tightening Inequalities

Jul 2004 – Oct 2004 | Nuffield URB/01606/G short term grant (summer intern), value £1,520

I am the principal investigator of the following grants:

Verifying Legacy C Programs using Numeric Domains

Jan 2010 – Dec 2014 | DFG Emmy Noether grant with two PhD positions, value approximately €960,000 excl. overheads

Deriving Modular Type Inferences that Compute Best Types using Abstract Interpretation

July 2013 – June 2014 | Microsoft SEIF grant, value US\$ 25,000

Nominations

Prof Dr Paul Kelly, Imperial College London, who was the external examiner of my PhD viva, recommended my thesis for the “Distinguished Dissertation” award of the British Computer Society. I withdrew from the competition in favor of publishing an extended version of my thesis as a Springer monograph which was published in July 2008.

Teaching Experience

1998 – 2000	Held group seminars for entry-level computer science courses.
2001–2005	Teaching Assistant. Supervised seminar sessions for undergraduate students. The topics of the courses covered Function Programming, Logics, Information Systems, UML, Java, HTML & PHP and MS Office.
2010–now	Voluntary Teaching. Revamped and taught 50% of a course on compiler construction, held every year.
2012–now	Voluntary Teaching. Prepared and taught 50% of a course on programming language principles with focus on concurrency.

Education

2000 – 2001	Development of a feeding system for my parent’s farm
1998 – 1999	Erasmus year at Chalmers Technical University, Gothenburg, Sweden
1995 – 2000	Diplomstudiengang Informatik, RWTH Aachen, Germany
Sep 1992 – Feb 1993	Battle-Creek High-School, Michigan, USA
1988 – 1995	Graf-Adolf Gymnasium Tecklenburg, Germany
1986 – 1988	Realschule Westerkappeln, Germany

Languages

German	native tongue
English	fluent
French	advanced
Swedish	fair

Other Activities

In my spare time, I pursue interests in electronics, in playing the guitar and double bass, in horse riding and in classical music. I am proficient in developing Intel 8051- and Atmel AVR-based microcontroller systems. Furthermore, I have created the user-interface library Gtk2Hs for Haskell and maintained it for over 10 years. Due to this activity I was invited to the Haskell's Implementer's Meeting in Stockholm (HIM) in 2003. In 2006, Thorsten Altenkirch invited my co-developer Duncan Coutts and me to give a presentation of our toolkit to the Epigram developers at Nottingham.

Social activities:

2012 – now	Member of the Munich International Orchestra
2010 – now	Member of Choir, LMU Munich, Germany
2008 – 2009	Member of Choir, Academie de Musique, Paris
2006 – 2007	Member of the University Choir Kent, UK
2005 – 2006	Treasurer of the University of Kent Equestrian Club
2004 – 2006	Team Member of the University of Kent Equestrian Club
1999 – 2001	College Warden of a student college in Aachen hosting 123 students
1998 – 2000	Member of the University Choir Aachen