Curriculum Vitae

Christian Haack

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Citizenship

German

Academic Degrees

Ph.D., Computer Science, September 2001, Kansas State University, U.S.A. Supervisor: Dr. Alley Stoughton. Dissertation title: *Foundations for a Tool for the Automatic Adaptation of Software Components Based on Semantic Specifications*.

Diplom, Mathematics with Computer Science, October 1993, Technical University Darmstadt, Germany. Supervisors: Dr. Achim Jung, Dr. Klaus Keimel. Thesis title: *Die Hyperlimeskonstruktion*.

Research Interests

Software specification and verification

Type systems for programming languages

Static program analysis

Language-based security

Employment (Industry)

Since February 2009, Senior Software Engineer at **aicas GmbH, Karlsruhe, Germany**.
Context: aicas GmbH is a company that develops Java-based solutions for real-time and embedded systems.
Duties: Development and maintenance of various subcomponents of a real-time Java VM and a secure application manager for the Java Micro Edition.

Employment (Research)

Oct. 2005 – Jan. 2009, Researcher at **Radboud Universiteit, Nijmegen, The Netherlands**.
Context: FP6 project "Mobius: mobility, ubiquity and security", financed by the European Union, which employed proof-carrying-code technology to enhance security of Java-enabled mobile phones. Site leader: Dr. Erik Poll.
Key accomplishments: Development of verification systems for multi-threaded Java programs, and type systems for object immutability.

Mar. 2003 – Aug. 2005, Research Associate at **DePaul University, Chicago, U.S.A.**.
Context: Project on advanced type systems for verifying safety properties of cryptographic protocols, financed by the American "National Science Foundation (NSF)". Principal investigator: Dr. Alan Jeffrey.
Key accomplishments: Development of type systems for cryptographic protocols and implementation of the cryptographic protocol typechecker Cryptyc.

Sep. 2001 – Feb. 2003, Research Associate at **Heriot–Watt University, Edinburgh, U.K.**.
Context: Project on implementing modular program analysis via intersection and union types, financed by the British "Engineering and Physical Sciences Research Council (EPSRC)". Principal investigator: Dr. Joe Wells.
Key accomplishments: Development and implementation of algorithms for the accurate localization of type errors in implicitly typed programming languages.

Employment (Teaching)

Graduate Courses

Jan. 2008 – Jun. 2008, Teacher of *Verification of Security Protocols*.
Institution: **Technical University of Eindhoven, The Netherlands**.
Course webpage: `http://www.cs.ru.nl/~chaack/teaching/2IF02-Spring08`

Jan. 2007 – Jun. 2007, Teacher of *Verification of Security Protocols*.
Institution: **Technical University of Eindhoven, The Netherlands**.

Undergraduate Courses

Summer 2000, Teacher of *Analysis of Algorithms and Data Structures*.
Institution: **Kansas State University, U.S.A.**.
Course webpage: `http://www.cs.ru.nl/~chaack/teaching/CIS500f97`

Fall 1997, Teacher of *Analysis of Algorithms and Data Structures*.
Institution: **Kansas State University, U.S.A.**.
Course webpage: `http://www.cs.ru.nl/~chaack/teaching/CIS500s00`

Teaching Assistantships

Aug. 1994 – Dec. 2000, Graduate Teaching Assistant for various classes in the areas of *theoretical computer science*, *algorithms* and *programming languages*.
Institution: **Kansas State University, U.S.A.**.

PhD Schools

January 2009, Teacher of *Specification and Verification of Heap Access Policies*.
Winter School on Verification of Object-Oriented Programs in Viinistu, Estonia, 25-29/01/09. Organized as part of the **European Science Foundation** COST Action IC0701. `http://viinistu.cost-ic0701.org`

November 2008, Teacher of *Type-based Immutability for Java-like Languages*.
Fall Days on Software Analysis in Nunspeet, The Netherlands, 24-28/11/08. Organized by the **Dutch Institute for Programming Reseach and Algorithmics (IPA)**. `http://www.win.tue.nl/ipa/activities/falldays2008`

Awards

Best paper award at the **European Joint Conferences on Theory and Practice of Software 2007 (ETAPS)** for the paper *Immutable Objects for a Java-like Language* (jointly with Poll, Schäfer and Schubert) awarded by the *European Association for Theoretical Computer Science (EATCS)*.

Publications

Papers in Refereed Journals

[1] Christian Haack and Clément Hurlin, *Resource Usage Protocols for Iterators*, **Journal of Object Technology**, Special Issue with selected contributions from the workshops FTFJP and IWACO at ECOOP 2008, 8(4):55–83, June 2009.

[2] Christian Haack and Alan Jeffrey, *Pattern-Matching Spi-Calculus*, **Information and Computation**, 204(8):1195–1263, August 2006, Elsevier.

[3] Christian Haack and Joe Wells, *Type Error Slicing in Implicitly Typed, Higher-Order Languages*, **Science of Computer Programming**, 50:189-224, March 2004, Elsevier.

[4] Christian Haack, *A Decomposition Theorem for Domains*, **Information and Computation**, 124(1):62-67, January 1996, Elsevier.

Papers at Refereed Conferences

[5] Christian Haack and Erik Poll, *Type-based Object Immutability with Flexible Initialization*, **23rd European Conference on Object-Oriented Programming (ECOOP)**, July 2009, LNCS 5653, Springer Verlag.

[6] Christian Haack, Marieke Huisman and Clément Hurlin, *Reasoning about Java's Reentrant Locks*, **6th Asian Symposium on Programming Languages and Systems (APLAS)**, December 2008, LNCS 5356, Springer Verlag.

[7] Christian Haack and Clément Hurlin, *Separation Logic Contracts for a Java-like Language with Fork/Join*, **12th International Conference on Algebraic Methodology and Software Technology (AMAST)**, July 2008, LNCS 5140, Springer Verlag.

[8] Christian Haack, Erik Poll, Jan Schäfer and Aleksy Schubert, *Immutable Objects for a Java-like Language*, **16th European Symposium on Programming (ESOP)**, March 2007, LNCS 4421, Springer Verlag. Won EATCS Best Paper Award at ETAPS 2007.

[9] Christian Haack and Alan Jeffrey, *Timed Spi-Calculus with Types for Secrecy and Authenticity*, **16th International Conference on Concurrency Theory (CONCUR)**, August 2005, LNCS 3653, Springer Verlag.

[10] Christian Haack and Joe Wells, *Type Error Slicing in Implicitly Typed, Higher-Order Languages*, **12th European Symposium on Programming (ESOP)**, April 2003, LNCS 2618, Springer-Verlag.

[11] Christian Haack, Brian Howard, Allen Stoughton and Joe Wells, *Fully Automatic Adaptation of Software Components Based on Semantic Specifications*, **9th International Conference on Algebraic Methodology and Software Technology (AMAST)**, September 2002, LNCS 2422, Springer-Verlag.

[12] Joe Wells and Christian Haack, *Branching Types*, **11th European Symposium on Programming (ESOP)**, April 2002, LNCS 2305, Springer-Verlag.

Papers at Refereed Workshops

[13] Christian Haack, Erik Poll and Aleksy Schubert, *Explicit Information Flow Properties in JML*, **3rd Benelux Workshop on Information and System Security (WISSec)**, November 2008, TU Eindhoven.

[14] Christian Haack and Clément Hurlin, *Resource Usage Protocols for Iterators*, **3rd International Workshop on Aliasing, Ownership and Confinement (IWACO)**, co-located with ECOOP, July 2008.

[15] Christian Haack and Alan Jeffrey, *Pattern-Matching Spi-Calculus*, **2nd IFIP Workshop on Formal Aspects in Security and Trust (FAST)**, August 2004, Vol. 173 of IFIP series, Kluwer Academic Press.

Dissertations

[16] Christian Haack, *Foundations for a Tool for the Automatic Adaptation of Software Components Based on Semantic Specifications*, **PhD Dissertation, Dept. of Computer Science, Kansas State University, U.S.A.**, September 2001.

[17] Christian Haack, *Die Hyperlimeskonstruktion*, **Diplom Thesis, Dept. of Mathematics, Technical University Darmstadt, Germany**, August 1993.

Editorial Work

[18] Christian Haack, Marieke Huisman, Joe Kiniry, Erik Poll (eds.), **Proceedings of the 1st Workshop on Verification and Analysis of Multi-threaded Java-like Programs (VAMP)**, co-located with CONCUR 2007, appeared as Technical Report ICIS-R07021, Dept. of Computer Science, Radboud University Nijmegen, August 2007.

Technical Reports

[19] Christian Haack and Erik Poll, *Type-based Object Immutability with Flexible Initialization*, **Technical Report ICIS-R09001, Dept. of Computer Science, Radboud University Nijmegen**, 50 pages, January 2009.

[20] Christian Haack, Marieke Huisman and Clément Hurlin, *Reasoning about Java's Reentrant Locks*, **Technical Report ICIS-R08014, Dept. of Computer Science, Radboud University Nijmegen**, 52 pages, July 2008.

[21] Christian Haack and Clément Hurlin, *Separation Logic Contracts for a Java-like Language with Fork/Join*, **Technical Report 6430, INRIA Sophia Antipolis**, 98 pages, January 2008.

[22] Christian Haack, Erik Poll, Jan Schäfer and Aleksy Schubert, *Immutable Objects for a Java-like Language*, **Technical Report ICIS-R07009, Dept. of Computer Science, Radboud University Nijmegen**, 57 pages, April 2007.

[23] Christian Haack, Erik Poll and Aleksy Schubert, *Immutable Objects in Java*, **Technical Report ICIS-R06010, Dept. of Computer Science, Radboud University Nijmegen**, 10 pages, April 2006.

Academic Services

Program Committees

ACM Symposium on Applied Computing (SAC 2012), Programming Languages Track.

ACM Symposium on Applied Computing (SAC 2011), Programming Languages Track.

ACM Symposium on Applied Computing (SAC 2010), Programming Languages Track.

International Workshop on Aliasing, Confinement and Ownership (IWACO 2009), a satellite event of the European Conference on Object-Oriented Programming (ECOOP).

Workshop on Verification and Analysis of Multi-threaded Java-like Programs (VAMP 2007), a satellite event of the Concurrency Theory Conference (CONCUR).

Peer Reviewing

ACM Transactions on Programming Languages and Systems, ACM Transactions on Software Engineering and Methodology, Theoretical Computer Science, Fundamenta Informaticae, Journal of the IGPL (Interest Group in Pure and Applied Logic), APLAS 2011 (Asian Symposium on Programming Languages and Systems), POPL 2011, POPL 2003,

POPL 1997 (Principles of Programming Languages), Bytecode 2009 (Bytecode Semantics, Verification, Analysis and Transformation), ICFEM 2008 (International Conference on Formal Engineering Methods), FMOODS 2007, FMOODS 2006 (Formal Aspects of Open Object-based Distributed Systems), PLDI 2007 (Programming Language Design and Implementation), CONCUR 2006 (Concurrency Theory), FM 2006 (Formal Methods), FOSSACS 2006 (Foundations of Software Science and Computation Structures), TLCA 2005 (Typed Lambda Calculi and Applications), ESOP 2003 (European Symposium on Programming), ICFP 2002 (International Conference on Functional Programming), TIP 2002 (Workshop on Types in Programming), ITRS 2002 (Workshop on Intersection Types and Related Systems), SAS 2000 (Static Analysis Symposium).