

Bratin Saha

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Interests

Design and implementation of programming languages, compilers, type theory, typed intermediate languages, proof carrying code, security, and formal methods.

Education

- Ph.D. in Computer Science, 1997 – 2001 (expected).
Yale University, Department of Computer Science.
Thesis : Supporting Type Dependent Constructs in a Certifying Compiler.
Advisor : Professor Zhong Shao.
- M.S. in Computer Science, 1996 – 1997.
Yale University, Department of Computer Science.
Emphasis : Programming languages.
- B.Tech. in Computer Science and Engineering, 1992 – 1996.
Indian Institute of Technology, Kharagpur, Department of Computer Science.

Related Experience

- **Research Assistant, FLINT Project, Yale University, 1997 – Present.**
 - Design and implementation of an infrastructure for generating certified code. My work was primarily focused on language mechanisms for writing provably type safe runtime services, like garbage collectors. For details, see <http://flint.cs.yale.edu/saha>.
 - Member of the SML/NJ development team. The SML/NJ compiler is an industrial strength compiler for the Standard ML language developed jointly by Bell Laboratories, Princeton, and Yale. For details, see <http://cm.bell-labs.com/cm/cs/what/smlnj/index.html>.
- **Member of Technical Staff, Bell Laboratories, Lucent Technologies, June – August 1998.**
Implementation of control flow algorithms for higher order languages. The novel feature of these algorithms was the use of type information to ensure linear time complexity.
- **Teaching Assistant, Yale University, 1997 – 1998.**
I have been a teaching assistant for the following courses. The responsibilities included grading, leading discussion sections, and giving some lectures.
 - Data Structures and Programming Techniques.
 - Introduction to Systems Programming and Computer Organization.
 - Introduction to Computing.
- **Senior Project, Indian Institute of Technology, Kharagpur, 1996.**
Implementation of a parallelizing compiler for FORTRAN 90 for a network of processors. The Defense Research and Development Organization in India sponsored this project.
- **Summer Intern, Computer Maintenance Corporation, May – July 1995.**
Implementation of the user interface for a program to transfer files on the network owned by Computer Maintenance Corporation (called INDONET). This package was sold to various companies in India.

Publications

• Refereed Conference Publications

- Zhong Shao, Bratin Saha, Valery Trifonov, and Nikolaos Papaspyrou. “A Type System for Certified Binaries” *Principles of Programming Languages, POPL 2002, Portland, Oregon*.
- Stefan Monnier, Bratin Saha, and Zhong Shao. “Principled Scavenging” *Programming Language Design and Implementation, PLDI 2001, Snowbird, Utah*.
- Valery Trifonov, Bratin Saha, and Zhong Shao. “Fully Reflexive Intensional Type Analysis” *International Conference on Functional Programming, ICFP 2000, Montreal, Canada*.
- Bratin Saha, Valery Trifonov, and Zhong Shao. “Fully Reflexive Intensional Type Analysis in a Type Erasure Semantics” *Types in Compilation, TIC 2000, Montreal, Canada*.
- Bratin Saha, and Zhong Shao. “Optimal Type Lifting” *Types in Compilation, TIC 1998, Kyoto, Japan*.
- J. Mazumdar, D. Das, B. Saha, P.P. Das, and S.C. DeSarkar. “A Parallelizing Compiler For a Network of Processors” *National Symposium on Theoretical Computer Science, NSTCS 1996, Jaipur, India*.

• Journal Publications

- Bratin Saha, Valery Trifonov, and Zhong Shao. “Intensional Analysis of Quantified Types” Submitted for publication, *ACM Transactions on Programming Languages and Systems, TOPLAS*.

• Technical Reports

- Bratin Saha, Nevin Heintze, and Dino Oliva. “SubTransitive CFA Using Types” *Yale University Technical Report, YALEU/DCS/TR-1166*.

Honors

- Fellowship at Yale University, 1996 - 1997.
- Vincent Benedix award for the best project proposal during my undergraduate studies, Indian Institute of Technology, Kharagpur, 1994.
- National Talent Science Scholarship, Government of India, 1990 - 1996.
- Steel Authority of India Scholarship, 1992 - 1996.
- Certificate of Merit in National Physics Contest, Indian Association of Physics Teachers, 1991.

Service Activities

- Conference Refereeing: Programming Language Design and Implementation (PLDI), International Conference on Functional Programming (ICFP), Java Grande Conference.