Kaustuv Chaudhuri

Curriculum Vitae

1 Contact

INRIA Saclay – Île-de-France

Laboratoire d'Informatique (LIX) de l'École Polytechnique
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2 Employment

1. Institut National de Recherche en Informatique et en Automatique (INRIA), Saclay, France
   Chargé de recherche (research scientist), November 2009 – present
2. Microsoft Research–INRIA Joint Centre, Orsay, France
   Post-doctoral fellow, November 2007 – October 2009
3. INRIA and LIX, École Polytechnique, Palaiseau, France
   Post-doctoral fellow, November 2006 – October 2007
4. Carnegie Mellon University, Computer Science Dept., Pittsburgh, USA
   Doctoral research, August 2000 – October 2006
5. Microsoft Research, Redmond, USA
   Research internship, June 2004 – September 2004
6. Eizel Inc. (now part of Nokia), Pittsburgh, USA
   Programmer, May 2000 – September 2000

3 Education

1. Ph.D. in Computer Science
   Carnegie Mellon University, Pittsburgh, USA. December 2006
   Thesis: *The Focused Inverse Method for Linear Logic*
   Supervisor: Frank Pfenning
2. B.S. in Computer Science
   Carnegie Mellon University, May 2000 (university honours)
3. B.S. in Mathematics (Discrete Math. & Logic track)
   Carnegie Mellon University, May 2000 (university honours)

4 Research Interests

- Automated deduction; proof theory; logic programming; logical frameworks
- Specification and reasoning in stateful, concurrent and distributed systems
- Symbolic stochastic and probabilistic reasoning; constrained process calculi; logic for systems biology.

5 Publications

Refereed Journals

1. Kaustuv Chaudhuri, Frank Pfenning and Greg Price, *A Logical Characterization of Forward and Backward Chaining in the Inverse Method*. Journal of Automated Reasoning, 40(2–3), pp. 133–177. 2008.

Refereed International Conferences

2. Kaustuv Chaudhuri, Nicolas Guenot, and Lutz Straßburger, *The Focused Calculus of Structures*. EACSL Annual Conference on Computer Science Logic (CSL-20), Bergen, Norway. September 2011. To appear.
3. Kaustuv Chaudhuri, *Magically Constraining the Inverse Method Using Dynamic Polarity Assignment*. International Conference on Logic for Programming, Artificial Intelligence, and Reasoning (LPAR-17), Yogyakarta, Indonesia. Springer LNCS 6397, pp. 202–216. October 2010.

4. Kaustuv Chaudhuri, *Classical and Intuitionistic Subexponential Logics are Equally Expressive*. EACSL Annual Conference on Computer Science Logic (CSL-19), Brno, Czech Republic. Springer LNCS 6247, pp. 185–199, August 2010.
5. Kaustuv Chaudhuri, Damien Doligez, Leslie Lamport, and Stephan Merz, *Verifying Safety Properties With the TLA+ Proof System*. International Joint Conference on Automated Reasoning (IJCAR-5), Edinburgh, Scotland. Springer LNAI 6173, pp. 142–148, July 2010.
6. Kaustuv Chaudhuri, *Focusing Strategies in the Sequent Calculus of Synthetic Connectives*. Logic for Programming, Artificial Intelligence and Reasoning (LPAR-15), Doha, Qatar. Springer LNCS 5330, pp. 467–481. November 2008.
7. Kaustuv Chaudhuri, Dale Miller, and Alexis Saurin, *Canonical Sequent Proofs via Multi-Focusing*. IFIP International Conference on Theoretical Computer Science (TCS-5), Milan, Italy. IFIP 273, pp. 383–396. September 2008.
8. Kaustuv Chaudhuri, Frank Pfenning, and Greg Price, *A Logical Characterization of Forward and Backward Chaining in the Inverse Method*. International Joint Conference on Automated Reasoning (IJCAR-3), Seattle, Washinton. Springer LNCS 4130, pp. 97–111. August 2006.
9. Kaustuv Chaudhuri and Frank Pfenning, *Focusing the Inverse Method for Linear Logic*. Computer Science Logic (CSL-19), Oxford, UK. Springer LNCS 3634, pp. 200–215. August 2005.
10. Kaustuv Chaudhuri and Frank Pfenning, *A Focusing Inverse Method Theorem Prover for First-Order Linear Logic*. Conference on Automated Deduction (CADE-20), Tallinn, Estonia. Springer LNCS 3632, pp. 69–83. July 2005.

Refereed International Workshops

11. Kaustuv Chaudhuri, Damien Doligez, Leslie Lamport, and Stephan Merz, *A TLA+ Proof System*. Workshop on Knowledge Exchange: Automated Provers and Proof Assistants (KEAPPA). CEUR Workshop Proceedings 418, pp. 17–37. November 2008.

Theses and Technical Reports

12. Kaustuv Chaudhuri and Joëlle Despeyroux, *A Logic for Constrained Process Calculi with Applications to Molecular Biology*. INRIA. Technical Report. May 2009.
13. **Kaustuv Chaudhuri, *The Focused Inverse Method for Linear Logic*. Carnegie Mellon University. Ph.D. thesis, available as technical report CMU-CS-06-162. December 2006.**
14. Kaustuv Chaudhuri and Frank Pfenning, *Focusing the Inverse Method for Linear Logic*. Carnegie Mellon University. Technical Report CMU-CS-05-106. July 2005.
15. Kaustuv Chaudhuri, *The Inverse Method for Intuitionistic Linear Logic (The Propositional Fragment)*. Carnegie Mellon University. Technical Report CMU-CS-03-140. November 2003.
16. Bor-Yuh Evan Chang, Kaustuv Chaudhuri, and Frank Pfenning, *A Judgemental Analysis of Linear Logic*. Carnegie Mellon University. Technical Report CMU-CS-03-131R. April 2003.

Miscellaneous

17. Kaustuv Chaudhuri, Damien Doligez, Leslie Lamport, and Stephan Merz, *The TLA+ Proof System: Building a Heterogeneous Verification Platform*. Invited paper to the International Colloquium on Theoretical Aspects of Computing (ICTAC-7), Natal, Rio Grande do Norte, Brazil. Springer LNCS 6256, p. 44. September 2010.
18. Kaustuv Chaudhuri, *Polarities in Theorem Proving and Logic Programming*. Association of Logic Programming. Newsletter. May 2007.

6 Talks and Seminars

Invited Talks

1. *Towards a Negative Existential Using Epsilon Terms*, *Collegium Logicum:* Proofs and Structures, Paris, France. November 2010
2. *Canonicity in the Sequent Calculus*, Carnegie Mellon University, Pittsburgh, USA. May 2010
3. *Focusing Strategies for Synthetic Connectives*, Structural Proof Theory Workshop, Paris, France, November 2008

Conference and Workshop Talks

4. *Focusing Strategies for Synthetic Connectives*, LPAR, Doha, Qatar, November 2008
5. *A TLA+ Proof System*, IWIL-KEAPPA, Doha, Qatar, November 2008
6. *Canonical Sequent Proofs via Multi-Focusing*, IFIP-TCS, Milan, Italy, September 2008
7. *A Logical Characterization of Forward and Backward Chaining in the Inverse Method*, FLoC, Seattle, WA, USA, August 2006
8. *Focusing the Inverse Method for Linear Logic*, CSL, Oxford, UK, August 2005
9. *A Focusing Inverse Method Theorem Prover for First-Order Linear Logic*, CADE, Tallinn, Estonia, July 2005

7 Important Software Releases

1. *The TLA+ Proof System*
   A proof development framework for the TLA+ specification language.

Written in Objective Caml, reseased under a BSD license
`http://www.msr-inria.inria.fr/~doligez/tlaps`

2. *Linprover*
A certifying focused inverse method theorem prover for first-order intuitionistic linear logic
Written in Standard ML, released under the GPL 2.0
`http://www.lix.polytechnique.fr/~kaustuv/linprover`

8 Teaching

Carnegie Mellon University, teaching assistantship (TA)

1. CS-312, *Foudations of Programming Languages* (third year PL requirement), Fall 1997, Spring 1998, Spring 1999
   - An intensive introduction to the theory and practice of programming languages.
   - 1 hour lecture and 1 office hour per week, grading
2. CS-411, *Compiler Design* (third or fourth year elective), Spring 2003
   - An introduction to compiler design, including a substantial project component to build all phases of a compiler from scratch.
   - Orchestrated the main project sequence (10 weeks long) to build a compiler for a safe C dialect.
   - 2 guest lectures total (1.5 hours each), 2 office hours per week, grading
3. CS-212, *Principles of Programming* (second year requirement), Fall 2004
   - A broad introduction to advanced data structures and programming techniques
   - 1 hour lecture and 1 office hour per week, grading

9 Personal Information

- Languages: English (native), Bengali (native), Hindi (fluent), some Japanese and French.
- U.S. citizen; Indian overseas citizen; *Titre de séjour temporaire* (temporary work permit), France.

Last updated: May 31, 2011