

## GUOHUA LIU

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### Education

- ◇ **PhD in Computing Science**, 2010 (**Outstanding Thesis Award**)  
University of Alberta, Canada.  
Concentrations: *Artificial Intelligence, Knowledge Representation and Reasoning, Constraint Programming, Logic Programming*  
Thesis: *Logic Programming with Constraints*
- ◇ **M. Eng in Computer Science**, 2002.  
Institute of Computing Technology  
Chinese Academy of Sciences (Top institute of China)  
Concentrations: *Integrated Circuit Design and Test*  
Thesis: *Hazard Analysis for Low-power Integrated Circuit Design and Verification*
- ◇ **B. Eng in Computer Science**, 1997.  
University of Sciences and Technology of China (Top University of China)  
Concentrations: *Constraint Satisfaction*  
Thesis: *An Integrated Approach to Constraint Satisfaction Problems*

### Awards and Scholarships

- ◇ PhD Outstanding Thesis Award, University of Alberta.
- ◇ Student Scholarship from the Association for the Advancement of Artificial Intelligence.
- ◇ Mary Louise Graduate Student Award, University of Alberta.
- ◇ Professional Development Grants, University of Alberta.
- ◇ F.S. Chia PhD scholarship, University of Alberta.
- ◇ Chinese National Awards for the Advancement in Natural Sciences (second rate), Chinese Academy of Sciences, (with my colleagues).

### Academic Services

- ◇ PC Member
  - Association for the Advancement of Artificial Intelligence (AAAI) Conference
  - International Joint Conferences on Artificial Intelligence
- ◇ Reviewer
  - Theory and Practice of Logic Programming
  - AAAI Conference
  - International Joint Conferences on Artificial Intelligence

- International Conference on the Principles of Knowledge Representation and Reasoning
- International Conference on Logic Programming and Nonmonotonic Reasoning
- International Conference on Knowledge Science, Engineering and Management
- Canadian Conference on Artificial Intelligence

## Research Experience

- ◇ Post-doctoral Researcher, Department of Information and Computer Science, Aalto University, Finland.
  - Language design and solver implementation for computational inference systems.
  - Machine learning via computational inference technology.
- ◇ PhD Student, Department of Computing Science, University of Alberta, Canada.
  - Languages, search algorithms, solver implementation, and program optimization for computational inference.
- ◇ Master Student and Research Engineer, Institute of Computing Technology, Chinese Academy of Sciences.
  - Integrated circuit verification.
  - Integrated circuit design for low power consumption.
- ◇ Software Engineer, Institute of Computing Technology, Chinese Academy of Sciences.
  - Software development for integrated circuit testing.

## Teaching Experience

- ◇ Answer Set Programming, Teaching Assistant, Aalto University.
- ◇ Discrete Models and Search, Teaching Assistant, Aalto University.
- ◇ Non-Procedural Programming Languages, Teaching Assistant, University of Alberta.
- ◇ Computer Algorithms, Teaching Assistant, University of Alberta.
- ◇ Java Programming Language, Teaching Assistant, University of Alberta.
- ◇ Introduction to Computing Science, Teaching Assistant, University of Alberta.

## Skills

**Programming Language:** C/C++, MATLAB, Prolog, Java, and Perl  
**Operating System:** Linux and Windows  
**IC Design Language:** VHDL and TCL/TP

## References

**Jia-Huai You** you@cs.ualberta.ca

**Ilkka Niemelä** ilkka.niemela@aalto.fi

**Tomi Janhunen** tomi.janhunen@aalto.fi

## Papers

1. *Introducing Real Variables and Integer Objective Functions to Answer Set Programming*, Guohua Liu, Tomi Janhunen, and Ilkka Niemelä. International Conference on Applications of Declarative Programming and Knowledge Management, To appear, 2013.
2. *Answer Set Programming via Mixed Integer Programming*, Guohua Liu, Tomi Janhunen, and Ilkka Niemelä. International Conference on Principles of Knowledge Representation and Reasoning 32-42, 2012.
3. *Relating Weight Constraint and Aggregate Programs: Semantics and Representation*, Guohua Liu and Jia-Huai You. Journal of Theory and Practice of Logic Programming 1-30, 2011.
4. *Loop Formulas for Logic Programs with Arbitrary Constraint Atoms*, Jia-Huai You and Guohua Liu. Association for the Advancement of Artificial Intelligence (AAAI) Conference, 584-589, 2008.
5. *Level Mapping Induced Loop Formulas for Weight Constraint and Aggregate Programs*, Guohua Liu and Jia-Huai You. Journal of Fundamenta Informaticae 106: 25-43, 2011.
6. *Strong Equivalence of Logic Programs with Abstract Constraint Atoms*, Guohua Liu, Randy Goebel, Tomi Janhunen, Ilkka Niemelä, and Jia-Huai You. International Conference on Logic Programming and Nonmonotonic Reasoning 161-173, 2011.
7. *Tight Integration of Non-Ground Answer Set Programming and Satisfiability Modulo Theories*, Tomi Janhunen, Guohua Liu, and Ilkka Niemelä. Workshop on Grounding and Transformations for Theories with Variables 2011.
8. *Level Mapping Induced Loop Formulas for Weight Constraint and Aggregate Programs*, Guohua Liu. International Conference on Logic Programming and Nonmonotonic Reasoning 444-449, 2009.
9. *Lparse Programs Revisited: Semantics and Representation of Aggregates*, Guohua Liu and Jia-Huai You. International Conference on Logic Programming, 347-361, 2008.
10. *Adaptive Lookahead for Answer set Computation*, Guohua Liu and Jia-Huai You. International Conference on Tools with Artificial Intelligence, 230-237, 2007.
11. *On the Effectiveness of Looking Ahead in Search for Answer Sets*, Guohua Liu and Jia-Huai You. International Conference on Logic Programming and Nonmonotonic Reasoning, 303-308, 2007.
12. *Logic Programs with Abstract Constraints: Representation, Disjunction and Complexities*, Jia-Huai You, Li Yan Yuan, Guohua Liu, and Yi-Dong

Shen. International Conference on Logic Programming and Nonmonotonic Reasoning, 228-240, 2007.

13. *Lookahead in Smodels Compared to Local Consistencies in CSP*, Jia-Huai You, Guohua Liu, Liyan Yuan, and Curtis Onuczko. International Conference on Logic Programming and Nonmonotonic Reasoning, 266-278, 2005.
14. *Hazard Detection and Elimination in Integrated Circuits*, Guohua Liu, Xiaoyang Yu, Yinhua Min, and Xiaowei Li. Journal of Computer Engineering and Application, 211-215, 2002.
15. *Design Verification of a General-purposed CPU Chip via Simulation*, Tao Lv, Huawei Li, Zhigang Yin, Guohua Liu, Xiaowei Li, and Jianping Fan. China National Test Conference, 99-109, 2003.
16. *Design Verification via Simulation: Techniques and Their Application in a General-purposed CPU Chip*, Tao Lv, Hua-wei Li, Zhigang Yin, Guohua Liu, Xiaowei Li, and Jianping Fan. Journal of System Simulation, Vol.14, No.12, 1698-1701, 2002.
17. *Hazard Detection and Elimination in Integrated Circuits*, Guohua Liu, Xiaoyang Yu, and Yinhua Min. China National Conference on Fault Tolerant Computing, 214-221, 2001.

**Patent**

1. *A Time Delay Based Approach for Hazard Detection and Elimination in Integrated Circuits*, Guohua Liu and Xiaowei Li. Patent ZL03125127.7, 2003.

**Technical Report**

1. *On the Effectiveness and Application of Lookahead in Answer Set Computation*, Guohua Liu and Jia-Huai You. Department of Computing Science, University of Alberta, 2008.