Mark Law | Curriculum Vitae

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Research Interests

I am a Research Associate in the Department of Computing at Imperial College London. I have a keen interest in Computational Logic, specifically logic-based machine learning and knowledge representation.

Education

Imperial College London
PhD Computer Science (Teaching Scholarship) *2013–2018*

Title: *Inductive Learning of Answer Set Programs*

Supervisors: Dr Alessandra Russo and Dr Krysia Broda

Imperial College London
MSci Mathematics and Computer Science, First Class Honours *2009-2013*

Final Year Project: *General Card Game Playing* (85%)

Prizes & Awards

IBM PhD Fellowship (2016)
Department of Computing Graduate Teaching Assistant award (winner 2015)
Faculty of Engineering Graduate Teaching Assistant award (runner up 2015)
Donald Davies Memorial Prize: Best final year individual project in the Department of Computing, Imperial College London (2013).

Publications

[1] Mark Law, Alessandra Russo, Bertino Elisa, Broda Krysia, and Lobo Jorge. Representing and learning grammars in answer set programming. In *AAAI*, 2019.

[2] Mark Law, Alessandra Russo, and Krysia Broda. Inductive learning of answer set programs from noisy examples. *Advances in Cognitive Systems*, 2018.

[3] Mark Law, Alessandra Russo, and Krysia Broda. The complexity and generality of learning answer set programs. *Artificial Intelligence*, 2018.

[4] Benjamin Wu, Alessandra Russo, Mark Law, and Katsumi Inoue. Learning commonsense knowledge through interactive dialogue. In *Technical Communications of the 34th International Conference on Logic Programming (ICLP 2018)*. Schloss Dagstuhl-Leibniz-Zentrum fuer Informatik, 2018.

[5] Piotr Chabierski, Alessandra Russo, Mark Law, and Krysia Broda. Machine comprehension of text using combinatory categorial grammar and answer set programs. In *Proceedings of the Thirteenth International Symposium on Commonsense Reasoning, COMMONSENSE 2017, London, UK, November 6-8*, 2017.

[6] Mark Law, Alessandra Russo, and Krysia Broda. Iterative learning of answer set programs from context dependent examples. *Theory and Practice of Logic Programming*, 16(5-6):834–848, 2016.

[7] Stanislav Dragiev, Alessandra Russo, Krysia Broda, Mark Law, and Calin-Rares Turliuc. An abductive-inductive algorithm for probabilistic inductive logic programming. In *Proceedings of the 26th International Conference on Inductive Logic Programming (Short papers), London, UK, 2016.*, pages 20–26, 2016.

[8] Gul Calikli, Mark Law, Arosha K Bandara, Alessandra Russo, Luke Dickens, Blaine A Price, Avelie Stuart, Mark Levine, and Bashar Nuseibeh. Privacy dynamics: Learning privacy norms for social software. In *Software Engineering for Adaptive and Self-Managing Systems (SEAMS), 2016 IEEE/ACM 11th International Symposium on*, pages 47–56. IEEE, 2016.

[9] Mark Law, Alessandra Russo, and Krysia Broda. Learning weak constraints in answer set programming. *Theory and Practice of Logic Programming*, 15(4-5):511–525, 2015.

[10] Duangtida Athakravi, Ken Satoh, Mark Law, Krysia Broda, and Alessandra Russo. Automated inference of rules with exception from past legal cases using ASP. In *Logic Programming and Nonmonotonic Reasoning - 13th International Conference, LPNMR 2015, Lexington, KY, USA, September 27-30, 2015. Proceedings*, pages 83–96, 2015.

[11] Mark Law, Alessandra Russo, and Krysia Broda. Inductive learning of answer set programs. In *Logics in Artificial Intelligence - 14th European Conference, JELIA 2014, Funchal, Madeira, Portugal, September 24-26, 2014. Proceedings*, Lecture Notes in Computer Science, pages 311–325. Springer, 2014.

Software

ILASP `http://www.ilasp.com/`

ILASP (Inductive Learning of Answer Set Programs) is the first system capable of learning ASP (Answer Set Programming) programs from examples. It can learn declarative, human readable, representations of knowledge, including hard and soft constraints from partial information.

Research Experience

DAIS - ITA (2018 - present): My work on the project has involved creating a new type of context-sensitive ASP-based grammar, which can be learned using ILASP. This work has enabled the learning of "generative policies".

EU FP7 Project - Allow Ensembles (2015-2016): This project explored various aspects of cognitive computing within the area of collective adaptive systems for smart city environments. I applied ILASP to learning human readable journey preferences from examples of journeys users prefered over other journeys.

EPSRC Project - Privacy Dynamics (2015-2016): One of the aims of this project was to develop computational techniques for privacy management in social networks. I used ILASP to learn declarative privacy preferences in a social networks, from observations of sharing behaviours.

Employment

Formicary — **London**
Summer Internship — *July 2013 – September 2013*

Qualcomm Research — **Cambridge**
Summer Internship — *June 2012 – September 2012*

Teaching

As a teaching scholar I have been very involved with various aspects of teaching in the department. My main responsibilities have included:

- **Lecturing:** Since 2015, I have taught one third of a new course aimed at the third year undergraduates and Msc students. My part of the course was on non-monotonic logic-based learning frameworks, including one lecture on my own research in the previous year. In 2018 I also gave two weeks worth of lectures on answer set programming as part of the Introduction to Artificial Intelligence course for second year undergraduates and Msc students.
- **Supervision:** I have supervised many undergraduate projects in the areas of program synthesis, general game playing and logic-based learning.