

Curriculum Vitae

Robin Boswell, MA, PhD.

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Profile

For the last four years I have been the research fellow on the KRUSTWorks¹ knowledge refinement project. KRUSTWorks refines applications in a number of different KBS shells (PROLOG, CLIPS and PowerModel) and can be extended to new ones. KRUSTWorks derives its flexibility from internal knowledge structures which provide a generic representation of both the rules in KBS, and the manner in which they interact during a particular problem-solving task. In my earlier Ph.D. work, I applied the KRUST program to Astra-Zeneca's tablet-formulation system, using techniques of knowledge refinement, knowledge representation and machine learning.

Previously I have worked on knowledge refinement at Aberdeen University, and on machine learning and KBSs at the Turing Institute. My activities at Turing included implementing enhanced versions of the inductive learning programs ID3 and CN2 as part of the ESPRIT MLT project, maintaining and extending the Optimist prospect-appraisal expert system for Enterprise Oil, and developing an intelligent personnel-assignment assignment system for US Office of Naval Research.

I have worked on two ESPRIT projects, and performed contract work and collaboration with major industrial partners. I have experience in lecturing, demonstrating, and some student supervision (details below). I have experience in presenting papers at both internal seminars, and international conferences.

Qualifications

	Subject	Institution	Date
PhD.	Knowledge Refinement	Robert Gordon U.	Feb '98
Cert. of Adv. Study	Mathematics (Part III)	Cambridge U.	1983
BSc Hons (II)	Mathematics	Cambridge U.	1982

¹EPSRC GR/L38387 awarded to Susan Crow

Employment history/Education

- '97/4 – present Research Fellow, The Robert Gordon University
- '94/10 – '97/3 Research Student, The Robert Gordon University
- '93/9 – '94/8 Research Fellow, Aberdeen University
- '86/9 – '93/7 Research Scientist, Turing Institute, Glasgow
- '83/10 – '86/6 Research Student, Dept. of AI, Edinburgh University
- '79/10 – '83/7 Maths undergrad/post-grad, Cambridge University
- '79/1 – '79/9 Applications Programmer for IBM UK Ltd.

Collaborative Projects

- 2000** Contract work for the Profits² consortium, porting KRUSTWorks to Windows and applying it to the Formulogic application.
- '95-'97 Collaboration with Zeneca and Logica, applying the KRUST refinement tool to a tablet-formulation application.
- '93-'94 Researcher on the ESPRIT VIVA project on knowledge verification and validation.
- '89-'91 Researcher on the ESPRIT Machine Learning Toolkit Project.
- '86-'89 Contract work for Enterprise Oil (a prospect appraisal expert system) and the US Office of Naval Research (a personnel assignment expert system).

Technical Skills

Languages: Extensive experience of building knowledge-based applications in LISP, PROLOG, and C; building a Java GUI to a LISP application; experience and a working knowledge of PostScript, APL, X/Motif, Splus, Pascal.

Unix: 16 years' experience of BSD Unix, and later Solaris, Unix programming and Unix tools including EMACS, YACC, LEX, awk and some system administration.

User Interfaces: Experience of user interface development using Java, X/Motif, and HyperNeWS/PostScript.

DTP tools: Extensive use of L^AT_EX and FrameMaker.

²Profits aims to facilitate the adoption of intelligent software by pharmacologists. Members include AstraZeneca and Glaxo Wellcome.

Teaching and Supervisory experience

- 1999** Supervised Summer Research Project student. Assisted in supervision of PhD student while supervisor was on sabbatical. Delivered two lectures in CS5 *Advanced Knowledge-Based programming*.
- 1995-97, 2000** Demonstrated for undergraduate CS labs (2nd – 4th year) in PROLOG, LISP, AI (Searching techniques), Expert Systems (CLIPS), and HND2 Delphi.
- 1991** Designed, delivered and examined the Machine Learning component of the Expert Systems module for the MSc in Business Information Technology Systems, Strathclyde University.
- 1987-1991** Designed, delivered and examined the Applicative Languages (PROLOG) module for the MSc in Information Technology Systems, Strathclyde University.
- 1985** Demonstrated for the PROLOG module of the MSc in AI, Department of AI, Edinburgh University.

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Publications

- [1] Robin Boswell and Susan Craw. Experiences with a generic refinement toolkit. In *Proceedings of the 12th European Knowledge Acquisition Workshop (EKAW2000)*, Juan Les Pins, France, 2000. Springer. In Press.
- [2] Robin Boswell and Susan Craw. Knowledge Modelling for a Generic Refinement Framework. *Knowledge Based Systems*, 12(5-6):317–325, October 1999. Also appears in Proceedings of the BCS Expert Systems Conference, 58–74, Springer, 1998.
- [3] Susan Craw and Robin Boswell. Representing Problem-Solving for Knowledge Refinement. In *Proceedings of the Sixteenth National Conference on Artificial Intelligence*, pages 227–234, Orlando, FL, 1999. AAAI Press/MIT Press.
- [4] Susan Craw, Robin Boswell, and Raymond C. Rowe. Automated knowledge refinement for rule-based formulation expert system. *Pharmaceutical Science and Technology Today*, 2(9):383–385, 1999.

- [5] Robin Boswell and Susan Craw. Organising Knowledge Refinement Operators. In *Validation and Verification of Knowledge Based Systems, Proceedings of the 5th European Symposium on the Validation and Verification of Knowledge Based Systems (EUROVAV'99)*, pages 149–161, Oslo, Norway, 1999. Kluwer.
- [6] Robin Boswell. *Knowledge Refinement for a Formulation System*. PhD thesis, School of Computer and Mathematical Sciences, The Robert Gordon University, 1998.
- [7] Susan Craw, Robin Boswell, and Ray Rowe. Knowledge refinement to debug and maintain a tablet formulation system. In *Proceedings of the 9TH IEEE International Conference on Tools with Artificial Intelligence (TAI'97)*, pages 446–453, Newport Beach, CA, 1997. IEEE Press.
- [8] Robin Boswell, Susan Craw, and Ray Rowe. Knowledge refinement for a design system. In Enric Plaza and Richard Benjamins, editors, *Knowledge Acquisition, Modeling and Management, Proceedings of the 10th European Workshop (EKAW97)*, pages 49–64, Sant Feliu de Guixols, Spain, 1997. Springer.
- [9] Robin Boswell, Susan Craw, and Ray Rowe. Refinement of a product formulation expert system. In *Proceedings of the ECAI-96 Workshop on Validation, Verification and Refinement of KBS*, pages 74–79, Budapest, HUNGARY, August 1996.
- [10] Susan Craw, Derek Sleeman, Robin A. Boswell, and Leonardo Carbonara. Is knowledge refinement different from theory revision? In Stefan Wrobel, editor, *Proceedings of the MLNet Familiarization Workshop on Theory Revision and Restructuring in Machine Learning (ECML-94)*, pages 32–34, Catania, ITALY, 1994. GMD Technical Report Number 842.
- [11] Peter Clark and Robin A. Boswell. Rule induction with CN2: some recent improvements. In Y. Kodratoff, editor, *Proceedings of the Fifth European Working Session on Learning*, 1991.
- [12] Katharina Morik, Karine Causse, and Robin A. Boswell. A common knowledge representation integrating learning tools. In R. S. Michalski, editor, *Proceedings of the First International Workshop on Multi-Strategy Learning*, 1991.
- [13] Robin A. Boswell. Analytic goal-regression: Problems, solutions and enhancements. In Luc Steels, editor, *Proceedings of the ECAI86 Conference*, 1986.