Prof Edmund ROBINSON

MA, MMath, PhD, FBCS, CITP

Professor of Computer Science
Queen Mary, University of London

Career History:
2008-2010: Founding Head of School, School of Electronic Engineering and Computer Science, Queen Mary, University of London
2002-06, 2006-2008: Head of Department of Computer Science, Queen Mary University of London
Sep 1995 - date: Professor of Computer Science, Queen Mary, University of London
Apr-Aug 1995: Reader in Computer Science, University of Sussex
Oct 1993 – Sep 1995: EPSRC Advanced Fellow, University of Sussex
Jan 1990 – Apr 1995: Lecturer in Computer Science, School of Cognitive and Computing Sciences, University of Sussex
Sep 1987 – Dec 1989: Assistant Professor, Department of Computing and Information Science, Queen's University, Kingston, Ontario
Jan 1985 -- Aug 1987: Research Fellow, Peterhouse, Cambridge,
Jan-Dec 1984 Research Associate, Department of Computer Science, University of Edinburgh

Other administration:
2010-date: Acting Director, ImpactQM, EPSRC KTA EP/H500162/1, £2.9m

Membership of Professional Bodies:
Fellow of the British Computer Society,
Chartered Information Technology Practitioner.

External Academic Activity:
Member of Editorial Board: Journal of Pure and Applied Algebra to 2008.
Member of EPSRC Computer Science College (panel member and chair for Systems Engineering and Critical Systems panels). (1998-2006, 2010-date)
Member of Ministry for Education University and Research (sic) MIUR (Italy) grant review panel.
External assessor for MITI (Japan), MURST (Italy), FCAR (Quebec, Canada)
Member Steering Committee: Collaborative Research Team of Informatics, AIST, Amigasaki, Japan 2002-03.

Education:
PhD in Mathematics (Cambridge): 1984
MA in Mathematics (Cambridge): 1984
Certificate of Advanced Study in Mathematics (Cambridge): 1980
BA in Mathematics (Cambridge): 1979

Grants (recent)

EPSRC GR/S41845 Bunched ML 2003-2007 £167,519
(with P. O'Hearn and D.J. Pym, £320,160 total)
EPSRC GR/R29680 The Semantics of Classical Proofs 2001-2004 £143,860
(with J.M.E. Hyland and D.J. Pym) rated "Outstanding" on final report.
ESPRIT Working Group 26142 Applied Semantics £10,140
EPSRC GR/L54639 Logic Programming, Imperative Programming and Categorical Semantics 1997-2000 £150,355 (with P.W. O'Hearn and D.J. Pym) rated "Outstanding" on final report.

PhD Supervision

Four PhD students:
A. Eppendahl: graduated 2004
J. Bean (with D.J. Pym): graduated 2006
Tom Powell: Current

Contact Information

Address (Home): 35 Rustat Road, Cambridge, CB1 3QR
Tel: (Home) +44 1223 241605, (Work) +44 207 882 5209, (Mob) +44 750 671 3254
Email: e.p.robinson@dcs.qmul.ac.uk

Selected Publications

1. Matthew Collinson, David Pym, and Edmund Robinson. On bunched polymorphism. Springer Lecture Notes in Computer Science, Volume 3634, Proceedings of Computer Science Logic 2005, pages 36-50.
2. Gianluigi Bellin, Martin Hyland, Edmund Robinson, and Christian Urban. Categorical proof theory of classical propositional calculus. Theoretical Computer Science, Volume 364, Issue 2, 6 November 2006, Pages 146-165
3. Edmund Robinson. Proof nets for classical logic. J. Logic Comput., 13(5):777–797, 2003. Special issue: Semantic foundations of proof-search.
4. E.P. Robinson. Variations on algebra: Monadicity and generalisations of equational theories. Formal Aspects of Computing, 13(3-5):308–326, 2002. in the Festschrift for Prof RM Burstall.
5. Edmund Robinson and Giuseppe Rosolini. An abstract look at realizability. In Computer science logic (Paris, 2001), volume 2142 of Lecture Notes in Comput. Sci., pages 173–187. Springer, Berlin, 2001.
6. A.J. Power and E.P. Robinson. Logical relations, data abstraction and structured fi- brations. In Maurizio Gabrielli and Frank Pfenning, editors, Proceedings of the Second International ACM SIGPLAN Conference on Principles and Practice of Declarative Programming (PPDP'00), pages 15–23. ACM Press, 2000.
7. John Power and Edmund Robinson. Logical relations and data abstraction. In Peter Clote and Helmut Schwichtenberg, editors, Computer Science Logic (Fischbachau, 2000), volume 1862 of Lecture Notes in Comput. Sci., pages 497–511. Springer, Berlin, 2000.
8. John Power and Edmund Robinson. Modularity and dyads. In MFPS XV: Mathematical Foundations of Programming Semantics, Fifteenth Conference

(New Orleans, LA, 1999), volume 20 of Electron. Notes Theor. Comput. Sci., page 14 pp. (electronic). Elsevier, Amsterdam, 1999.
9. John Power and Edmund Robinson. Premonoidal categories and notions of computation.Math. Structures Comput. Sci., 7(5):453–468, 1997. Logic, domains, and programming languages (Darmstadt, 1995).
10. E.P. Robinson. Logical relations and data abstraction. In V. De Paiva and A. Jung, editors, Proceedings of Logic and Semantics For Programming, pages 56–65. Birmingham University, 1996.

Academic Leadership:
Over my eight years as Head I led the building of first a successful Computer Science department and then its merger into what is now one of the most successful large schools of Computer Science and Electronic Engineering in the country.

Key achievements by the School include:

- a large grant portfolio (now over £30m, including approximately £21m in ESPRC funding).
- £1.75m additional income through success in RAE
- 9 individual fellowships awarded to School members
- 3 EPSRC platform grants
- 3 EPSRC programme grants
- 1 EPSRC Doctoral Training Centre
- Approximately 180 PhD students.
- A successful Joint Programme in China with approximately 2000 students.
- Running the UK's most prominent Computer Science outreach activities.
- Four spinout companies.
- A new portfolio of sandwich degrees.

Less tangibly we have also fostered an environment in which staff contribute to College activities, both through academic leadership and engagement: I lost my likely successor as Head of School when he was appointed Dean for Teaching in Science and Engineering (fortunately I had a reserve). We have engaged heavily in and contributed expertise to recent College IT activities, such as our new Student Information System. We pioneered and largely developed the College's infrastructure for WIFI and Storage Area Networks.

The merger between Electronic Engineering and Computer Science has been an enormous success. Two key indicators of this are:

- Continuing improvement in metrics
- No staff departures as a result of it.

The School has been left in a position where it can continue to develop.

During the course of my term I was very successful in managing staff (at the time of the previous RAE, 14 CS staff were identified as having performance issues, and in 11 cases those issues have been solved). Equally, many staff were successful in advancing their careers.

At the same time we dealt successfully with problems, notably the closure of a loss-making distance-learning activity, and HEFCE's change of banding for Computer Science which put the department into loss. By the end of my term it was back in surplus. EECS is now firmly in the black.

Research Statement:

My research links logic and computer science, often using the technology of category theory, sometimes overtly, sometimes covertly.

Computer Science and logic have developed symbiotically for the past thirty years, and the work of the theory group at Queen Mary, which I developed and led up to the point I took on the Headship of the CS department, illustrates this very well. One of the major successes of the group is the work on Separation Logic led by Prof Peter O'Hearn. This is an almost perfect story of how theoretical ideas (in this case taken from substructural logic, and in which I was involved at the beginning) can be developed first to apply to semantics in Computer Science and then to have serious practical applications.

Other work in the group also involves taking serious mathematical and logical analyses and using practical problems to drive their development. These include Malacaria's work on the application of information theory to security, and Honda's work using pi-calculus in the context of web services.

Although I have done much to drive these while mentoring the staff, my own work has remained largely at the theoretical end, and moreover, has suffered a good deal during my headship.

My most recent significant piece of research was on the combinatorial structure of mathematical proofs. I was able to extend a net-theoretic formalism from sub-structural logic to full classical logic, an extension that was previously believed to be impossible. This formalism removes inessential choices about the ordering of stages in the proof and hence allows a more canonical representation.

Since standing down as Head I have been acting as Director of our Knowledge Transfer Account and working on the semantics of proof-mining, on which I have now given presentations at Imperial and in Italy.