

# Rong Qu, PhD, BSc in Computer Science

## A. SUMMARY

**Guest editor** for IEEE Transactions on Evolutionary Computation 2011 and Journal of Scheduling 2009

**Program chair** of seven workshops / special sessions / symposiums since 2009

One **top 0.1%**, three **top 1%** and seven **top 10% cited papers** in Math and CS by ISI Essential Science Indicators, including one **top 5 highly cited paper** at *Journal of Operational Research Society* 2009-2010

**Main supervisor** of seven PhD projects

**Co-investigator** of six grants awarded by EPSRC, TSB, The UK Highways Agency and NSFC (China)

**Best paper** award at *Expert Systems Dec 1999*

E.K. Burke, B. MacCarthy, S. Petrovic, **R. Qu (80%)**. Structured Cases in Case-Based Reasoning-Re-using and Adapting Cases for Timetabling Problems

**Distinction BSc Thesis Jul 1996**

## B. PERSONAL INFORMATION

**Lecturer** May 2005 – present

School of Computer Science, The University of Nottingham, UK, NG8 1BB

**PGCHE (full certificate)**, May 2011

University of Nottingham, Nottingham, U.K.

**PhD in Computer Science**, Dec 2002

Case-Based Reasoning for Course Timetabling Problems, University of Nottingham, Nottingham, U.K.

**Post-Doctoral Research Associate** Aug 2001 – May 2005

School of Computer Science, The University of Nottingham, UK, NG8 1BB

**Assistant Engineer** Jul 1996 – Sep 1998

Xi'an Heavy Machinery Institute of BaoGang Steel Corp., China

**BSc in Computer Science**, Jul 1996, Honours

Computer Science and Its Applications, XiDian University, Xi'an, Shaanxi, 710071, China

## C. UNIVERSITY & ACADEMIC SERVICE

**Guest editor** (with Professor Graham Kendall and Professor KC Tan) for the Special Issue of Evolutionary Computation in Scheduling at IEEE Transactions on Evolutionary Computation, 2011

**Guest editor** (with Derek Long and Maria Fox) for the Special Issue of Artificial Intelligence Planning and Scheduling at Journal of Scheduling, 12(3), June, 2009.

**Organiser** (with Edward Tsang) of the special session on Computational Intelligence Methods in Finance and Management at The 6th International Conference on Computational Management Science (CMS2009), Geneva, May 1-3 2009.

**Chair** (with Tan Kay Chen and Michel Gendreau) of 2009 IEEE Symposium on Computational Intelligence in Scheduling (CI-Sched 2009), Nashville, TN, USA, Mar 30 - Apr 2, 2009. Call For Papers

**Program chair** of The 25th Workshop of the UK Planning and Scheduling Special Interest Group (PlanSIG'06), Nottingham, UK, 14th - 15th December, 2006.

**Publicity chair** of the 2007 IEEE Symposium on Computational Intelligence in Scheduling (CISched'07), Honolulu, Hawaii, April 1-5, 2007.

**Chair** of Task Force on Evolutionary Scheduling and Timetabling at Technical Committee of Evolutionary Computation at IEEE Computational Intelligence Society

**Programme Committee Member** of Task Committee on Intelligent Systems Applications at IEEE Computational Intelligence Society

**Committee member** of the Special Interest Group on Local Search at The OR Society

**International Advisory Board member** of The Data Mining and Optimization Seminar, University of Kebangsaan, Malaysia

**Administrator** of EURO Working Group on Automated Timetabling (Oct 2005 – present)

**Program committee member** for more than 30 conferences since 2007.

**Program/conference chair**

Conferences/Symposiums	Place and Date	Co-chair(s)
2013 IEEE Symposium on Computational Intelligence in Scheduling (CISched2011) at IEEE Symposium Series on Computational Intelligence (SSCI 2013)	Singapore 16-19 April, 2013	Prof Wang
Special Session on Evolutionary Computation in Scheduling at 2012 IEEE Congress on Evolutionary Computation (IEEE CEC 2012)	June 10-15, 2012, Brisbane, Australia	Prof Tan
Special Session on Evolutionary Based Hyper-heuristics and Their Applications at 2012 IEEE Congress on Evolutionary Computation (IEEE CEC 2012)	June 10-15, 2012, Brisbane, Australia	Prof Uyar
2011 IEEE Symposium on Computational Intelligence in Scheduling	Paris, 11-15 April, 2011	Dr. E. Ozcan and Prof M. Gendreau
Special Session of Evolutionary Computation in Scheduling at IEEE Congress on Evolutionary Computation (IEEE CEC 2010)	Barcelona, Spain, 18-23 July, 2010	Prof Ting, Prof Vanden Berghe and Prof Tan

## D. Research

### Research supervision

Finished PhD projects (main supervisor)			
Metaheuristic Approaches for QoS Multicast Routing Problems	Dr. Ying Xu	PhD awarded in Jan 2011	Full-time PhD student Main supervisor
Towards Effective Integrations between Constraint Programming, Integer Programming and Local Search for Combinatorial Optimisation Problems	Ms Fang He	viva expected in Dec 2011	Full-time PhD student Main supervisor
Constructive Hyper-Heuristics for Examination Timetabling and 3D Strip Packing	Mr Nam Pham	viva expected in Dec 2011	Full-time PhD student Main supervisor Co-supervisor: Prof Burke
A Case Based Approach to Heuristic	Dr. Adam	Oct 2003 – Sep	Full-time PhD student

Selection for Timetabling	Eckersley	2006	Co-supervise with Prof. Burke
<b>Finished RA projects</b>			
Hybrid meta-heuristics on Nurse Rostering	Dr. Jingpeng Li	Sep 2006 – Aug 2009	Full-time Research Associate Co-supervise with Prof. Burke
Novel Metaheuristics in Health Personnel Rostering	Dr. Tim Curtois	Oct 2003 – Sep 2007	Full-time PhD student Co-supervise with Prof. Burke

<b>Current projects (principle supervisor)</b>			
Adaptive hyper-heuristics on timetabling problems	Amr Soghier	Sep 2006 – Aug 2009	Full-time PhD student
Resource optimization in network coding based multicast	Huanlai Xing	Sep 2009 – Aug 2012	Full-time PhD student
Metaheuristics in portfolio optimization	Khin Lwin	Sep 2010 – Aug 2013	Full-time PhD student
Advanced algorithms in index tracking	Yan Jin	Oct 2011 – Sep 2014	Full-time PhD student
<b>Current projects (co-supervisor)</b>			
Hyper-heuristics for course timetabling	Joe Obit	PhD awarded in Apr 2011	Full-time PhD student Co-supervise with Dr. Landa Silva
Multi-objective Meta-Heuristics to Complex Combinatorial Problems	Juan Pedro Castro Gutierrez	May 2008 – Apr 2011	Full-time PhD student Co-supervise with Dr. Landa Silva
Hierarchical methods on nurse rostering problems	Geetha Barskaran	Jan 2008 – Jan 2013	Part-time PhD student Co-supervise with Prof. Bargiela, University Malaysia Campus
Data pre-processing on problem space of university timetabling problems	Rahim Siti Khatijah	Jul 2008 – Jun 2012	Full-time PhD student Co-supervise with Prof. Bargiela, University Malaysia Campus
Hyperheuristics in timetabling and optimization	Nasser R. Sabar	Sep 2009 – Aug 2012	Full-time PhD student Co-supervise with Dr. Ayob University of Kebangsaan, Malaysia
Hybridising meta-heuristics with OR techniques in inventory management	Yi Wang	Jan 2010 – Dec 2010	Full-time PhD student Co-supervise with Dr. Sun, Xi'an Jiaotong University, China
Meta-heuristic criteria in scheduling algorithms in mechanical production	Robert Jurcisin	Jan 2010 – May 2010	Full-time PhD student Visiting PhD student from Technical University of Kosice, Slovak Republic

#### Publications

**Citation analysis** ISI Essential Science Indicators Highly Cited Publications (accessible Oct 2011)

	<b>Top 0.1% cited in Computer Science or Mathematics by ISI Science Indicators</b>	<b>Top 1% cited in Computer Science or Mathematics by ISI Science Indicators</b>	<b>Top 10% cited in Computer Science or Mathematics by ISI Science Indicators</b>
<b>No. of papers</b>	1	3	5

Comments	Marked with # below	Marked with + below	Marked with ‡ below
<b>Peer-reviewed journal papers (*corresponding/main author)</b>			
			<b>R. Qu*</b> , Y. Xu, J. Castro, D. Landa-Silva. Particle Swarm Optimization for the Steiner Tree in Graph and Delay-Constrained Multicast Routing Problems. <i>Journal of Heuristics</i> , to appear. Impact factor: <b>1.064</b>
			H. Xing and <b>R. Qu</b> . A Compact Genetic Algorithm for the Network Coding Based Resource Minimization Problem. <i>Applied Intelligence</i> , doi: 10.1007/s10489-011-0298-8. Impact factor: <b>0.881</b>
			Y. Xu and <b>R. Qu</b> . A Hybrid Scatter Search Meta-heuristic for Delay-constrained Multicast Routing Problems. <i>Applied intelligence</i> , doi: 10.1007/s10489-010-0256-x. Impact factor: <b>0.881</b>
			E.K. Burke, N. Pham, <b>R. Qu</b> , J. Yellen. Linear Combinations of Heuristics for Examination Timetabling. <i>Annals of OR</i> , doi: 10.1007/s10479-011-0854-y. Impact factor: <b>0.675</b>
			J. Li, E.K. Burke and <b>R. Qu</b> . A Pattern Recognition Based Intelligent Search Method: Two Case Studies on the Assignment Problem. <i>Applied Intelligence</i> , doi: 10.1007/s10489-010-0270-z. Impact factor: <b>0.881</b>
			E.K. Burke, J. Li and <b>R. Qu</b> . A Pareto-Based Search Methodology for Multi-objective Nurse Scheduling. <i>Annals of OR</i> , to appear. doi: 10.1007/s10479-009-0590-8. Impact factor: <b>0.675</b>
			N.R. Sabar, M. Ayob, G. Kendall, <b>R. Qu</b> . A Graph Coloring Constructive Hyper-Heuristic for Examination Timetabling Problems. <i>Applied Intelligence</i> , doi: 10.1007/s10489-011-0309-9. Impact factor: <b>0.881</b>
			E.K. Burke, T. Curtois, <b>R. Qu</b> and G. Vanden Berghe. A Time Pre-defined Variable Depth Search for Nurse Rostering. <i>INFORMS Journal on Computing</i> , accepted, 2011. Impact factor: <b>1.785</b>
			N.R. Sabar, M. Ayob, G. Kendall, <b>R. Qu</b> . A Honey-bee Mating Optimization Algorithm for Educational Timetabling Problems. <i>European Journal of Operational Research</i> , accepted, 2011. Impact factor: <b>1.627</b>
			J. Li, E.K. Burke, T. Curtois, S. Petrovic and <b>R. Qu</b> . The Falling Tide Algorithm: a New Multi-objective Approach for Complex Workforce Scheduling. <i>Omega – International Journal of Management Science</i> , 40(3): 283-293, 2012. Impact factor: <b>3.235</b>
			P. Brucker, <b>R. Qu*</b> , E.K. Burke. Personnel Scheduling: Models and Complexity. <i>European Journal of Operational Research</i> , 210(3): 467-473, 2011. Impact factor: <b>1.627</b>
			H. Xing and <b>R. Qu</b> . A Population Based Incremental Learning for Network Coding Resources Minimization. <i>IEEE Communication Letters</i> , 99: 1-3, 2011. Impact factor: <b>1.14</b>
			B. Ryan, R. Qu, A. Schock, T. Parry. Integrating human factors and operational research in a multidisciplinary investigation of road maintenance. <i>Ergonomics</i> , 54(5): 436-452, 2011. Impact factor: <b>1.377</b>
			J. Li, E.K. Burke and <b>R. Qu</b> . Integrating Neural Networks and Logistic Regression to Underpin Hyper-heuristic Search. <i>Knowledge-Based Systems</i> , 24(2): 322-330, 2011. Impact factor: <b>1.574</b>
‡			P. Brucker, E.K. Burke, T. Curtois, <b>R. Qu*</b> , G. Vanden Berghe. A Shift Sequence Based Approach for Nurse Scheduling and a New Benchmark Dataset. <i>Journal of Heuristics</i> , 16(4): 559-573, 2010. Impact factor: <b>1.064</b> <b>Top 10% cited</b> in Computer Science and Mathematics by ISI Essential Science Indicator
+			B. McCollum, P. McMullan, B. Paechter, R. Lewis, A. Schaerf, L. Di Gaspero, A. J. Parkes, <b>R. Qu</b> , E.K. Burke. Setting the Research Agenda in Automated Timetabling: The Second International Timetabling Competition. <i>INFORMS Journal of Computing</i> , 22(1): 120-130, 2010. Impact factor: <b>1.785</b> <b>Top 1% cited</b> in Mathematics by ISI Essential Science Indicator
			Y. Xu and <b>R. Qu*</b> . Solving Multi-objective Multicast Routing Problems by Evolutionary Multi-objective Simulated Annealing Algorithms with Variable Neighborhoods. <i>Journal of Operational Research Society</i> , 62: 313-325, 2010. Impact factor: <b>1.481</b>
			E.K. Burke, J. Li, <b>R. Qu</b> . A Hybrid Model of Integer Programming and Variable Neighbourhood Search for Highly-Constrained Nurse Rostering Problems. <i>European Journal of Operational Research</i> , 203(2), 484-493, 2010. Impact factor: <b>1.627</b>
			E.K. Burke, T. Curtois, <b>R. Qu</b> , G. Vanden Berghe. A Scatter Search for the Nurse Rostering Problem, <i>Journal of Operational Research Society</i> , 61: 1667-1679, 2010. Impact factor: <b>1.481</b>
			E.K. Burke, A.J. Eckersley, B. McCollum, S. Petrovic, <b>R. Qu*</b> . Hybrid Variable Neighborhood Approaches

	to University Exam Timetabling. <i>European Journal of Operational Research</i> , 206: 46-53, 2010, Impact factor: <b>1.627</b>
‡	<b>R. Qu*</b> , E.K. Burke, B. McCollum. Adaptive Automated Construction of Hybrid Heuristics for Exam Timetabling and Graph Coloring Problems. <i>European Journal of Operational Research</i> , 198(2): 392-404, 2009. Impact factor: <b>1.627</b> <b>Top 10% cited</b> in Computer Science and Mathematics by ISI Essential Science Indicator
‡	<b>R. Qu*</b> , E.K. Burke. Hybridisations within a Graph Based Hyper-heuristic Framework for University Timetabling Problems. <i>Journal of Operational Research Society</i> , 60: 1273-1285, 2009. Impact factor: <b>0.839</b> <b>Top 10% cited</b> in Computer Science and Mathematics by ISI Essential Science Indicator
+	<b>R. Qu*</b> , E.K. Burke, B. McCollum, L.T.G. Merlot, S.Y. Lee. A Survey of Search Methodologies and Automated System Development for Examination Timetabling. <i>Journal of Scheduling</i> , 12(1): 55-89, 2009. Impact factor: <b>1.05</b> <b>Top 1% cited</b> in Computer Science and Mathematics by ISI Essential Science Indicator
‡	E.K. Burke, T.E. Curtois, G. Post, <b>R. Qu</b> , B. Veltman, A Hybrid Heuristic Ordering and Variable Neighbourhood Search for the Nurse Rostering Problem, <i>European Journal of Operational Research</i> , 2: 330-341, 2008. Impact factor: <b>1.627</b> <b>Top 10% cited</b> in Mathematics by ISI Essential Science Indicators
#	E.K. Burke, S. Petrovic, <b>R. Qu*</b> . A Graph-Based Hyper-Heuristic for Educational Timetabling Problems, <i>European Journal of Operational Research</i> , 176: 177-192, 2007. Impact factor: <b>1.627</b> <b>Top 0.1% cited</b> in Mathematics by ISI Essential Science Indicators
+	E.K. Burke, S. Petrovic, <b>R. Qu*</b> . Case-Based Heuristic Selection for Timetabling Problems, <i>Journal of Scheduling</i> , 9: 115-132, 2006. Impact factor: <b>1.05</b> <b>Top 1% cited</b> in Computer Science by ISI Essential Science Indicators
	E.K. Burke, B. MacCarthy, S. Petrovic, <b>R. Qu*</b> . Multi-Retrieval Case-based Reasoning for Course Timetabling Problems, <i>Journal of Operational Research Society</i> , 57(2): 148-162, 2006. Impact factor: <b>0.839</b>
	E.K. Burke, B. MacCarthy, S. Petrovic, <b>R. Qu*</b> . Structured Cases in Case-Based Reasoning-Re-using and Adapting Cases for Timetabling Problems, <i>Knowledge-Based Systems</i> , 13(2-3): 159-165, 2000. Impact factor: <b>1.574</b>
<b>Book/Book chapters</b>	
‡	E.K. Burke, M. Dror, S. Petrovic, <b>R. Qu*</b> . Hybrid Graph Heuristics in Hyper-Heuristics Applied to Exam Timetabling Problems. B.L. Golden, S. Raghavan and E.A. Wasil (eds.). <i>The Next Wave in Computing, Optimization, and Decision Technologies</i> . 79-91. Springer, 2005. <b>Top 10% cited</b> in Computer Science and Mathematics by ISI Essential Science Indicators
	<b>R. Qu</b> (ed.) Proceedings of the 25th Workshop of the UK Planning and Scheduling Special Interest Group (PlanSIG2006), December, 2006, Nottingham, UK. ISSN 1368-5708
<b>Peer reviewed conference papers</b>	
	H. Xing and <b>R. Qu</b> . A Population Based Incremental Learning for Delay Constrained Network Coding Resource Minimization. The 8th European Event on the Application of Nature-inspired Techniques for Telecommunication Networks (EvoCOMNET'11) at EvoStar'2011, 27-29 April 2011, Torino, Italy.
	Burke, E.K. and <b>Qu, R</b> and Soghier, A. An Adaptive Tie Breaking and Hybridisation Hyper-Heuristic for Exam Timetabling Problems. Nature Inspired Cooperative Strategies for Optimization, 2011.
	P. Brucker and <b>R. Qu</b> . Network Flow Models for Intraday Personnel Scheduling Problems. The 8th International Conference on the Practice and Theory of Automated Timetabling (PATAT 2010), 10-13 August 2010, Belfast, Northern Ireland
	E.K. Burke, <b>R. Qu</b> and A. Soghier. Adaptive Selection of Heuristics for Improving Constructed Exam Timetables. The 8th International Conference on the Practice and Theory of Automated Timetabling (PATAT 2010), 10-13 August 2010, Belfast, Northern Ireland
	<b>R. Qu</b> , F. He and E.K. Burke, Hybridizing Integer Programming Models with an Adaptive Decomposition

	Approach for Exam Timetabling Problems, MISTA 2009, pp. 435-446, 10-12 August 2009, Dublin
	Y. Xu and <b>R. Qu</b> , A GRASP approach for the delay-constrained multicast routing problem, MISTA 2009, pp. 93-104, 10-12 August 2009, Dublin
	E.K. Burke, <b>R. Qu</b> and A. Soghier, Adaptive Selection of Heuristics within a GRASP for Exam Timetabling Problems, MISTA 2009, pp. 409-423, 10-12 August 2009, Dublin
	F. He and <b>R. Qu</b> , Constraint-directed Local Search to Nurse Rostering Problems, accepted by <i>LSCS 2009</i> , 20 September 2009, to be held at CP'09, Sep, 2009, Lisbon
	G. Ochoa, <b>R. Qu</b> , E.K. Burke, Analyzing the Landscape of a Graph Based Hyper-heuristic for Timetabling Problems, GECCO'09, pp. 341-348, Montreal, 2009
	G. Baskaran, A. Bargiela and <b>R. Qu</b> , Hierarchical Method for Nurse Rostering based on Granular Pre-processing of Constraints, The 23rd EUROPEAN Conference on Modelling and Simulation, 9-12 June 2009, Madrid, Spain
	S. Khatijah Nor Abdul Rahim, A. Bargiela, <b>R. Qu</b> , Granular Modelling of Exam to Slot Allocation, The 23rd EUROPEAN Conference on Modelling and Simulation, 9-12 June 2009, Madrid, Spain
	N.R. Sabar, M. Ayob, G. Kendall, <b>R. Qu</b> , Roulette wheel Graph Colouring for Solving Examination Timetabling Problems, LNCS 5573, pp. 463-470
	<b>R. Qu*</b> , Y. Xu, G. Kendall, A Variable Descent Search Algorithm for Delay-Constrained Least-Cost Multicast Routing. Learning and Intelligent Optimization (LION 3), Trento, Italy, Jan 14-18, 2009
	<b>R. Qu*</b> , F. He, A Hybrid Constraint Programming Approach for Nurse Rostering Problems, AI-2008, 211-224, Cambridge, England, 9-11 December 2008
	J.R. Carrington, N. Pham, <b>R. Qu</b> , J. Yellen. An Enhanced Weighted Graph Model for Examination / Course Timetabling. PlanSIG 2007, 9-16, Prague, 2007
	<b>R. Qu*</b> , E.K. Burke. Adaptive Decomposition and Construction for Examination Timetabling Problems. MISTA 2007, 418-425, Aug, 2007, Paris
	S. Abdullah, U. Aickelin, E.K. Burke, A. Mohamed Din, <b>R. Qu</b> . Investigating a Hybrid Metaheuristic for Job Shop Rescheduling, Lecture Notes in Artificial Intelligence 4828, 357-368, 2007
	M. Ayob, A.M.A. Malik, S. Abdullah, A.R. Hamdan, G. Kendall, <b>R. Qu</b> . Solving a Practical Examination Timetabling Problem: A Case Study. In: O. Gervasi and M. Gavrilova (Eds.): Lecture Notes in Computer Science 4707, Part III, 611-624, 2007
	<b>R. Qu*</b> , E.K. Burke Hybrid Variable Neighbourhood Hyper-heuristics for Exam Timetabling Problems. <i>MIC'05</i> , 2005
	P. Brucker, <b>R. Qu*</b> , E.K. Burke and G. Post. A Decomposition, Construction and Post-processing Approach for a Specific Nurse Rostering Problem. <i>MISTA'05</i> , 397-406. 2005
	E. K. Burke, A. J. Eckersley, B. McCollum, S. Petrovic, <b>R. Qu</b> . Analysing Similarity in Exam Timetabling. In: <i>PATAT04</i> , 2004
	E. Burke, A. Eckersley, B. McCollum, S. Petrovic, <b>R. Qu</b> , Similarity Measures for Exam Timetabling Problems. <i>MISTA2003</i> , 2003
	E. Burke, A. Eckersley, B. McCollum, S. Petrovic, <b>R. Qu</b> , Using Simulated Annealing to Study Behaviour of Various Exam Timetabling Data Sets. <i>MIC2003</i> , 2003
	E.K. Burke, S. Petrovic, <b>R. Qu*</b> . Case Based Heuristic Selection for Examination Timetabling. <i>SEAL'02</i> , 2002
	S. Petrovic, <b>R. Qu*</b> . Case-Based Reasoning as a Heuristic Selector in a Hyper-Heuristic for Course Timetabling Problems. <i>Knowledge-Based Intelligent Information Engineering Systems and Allied Technologies</i> , Volume 82, 336-340. IOS Press. <i>KES'02</i> , 2002
	E.K. Burke, B. MacCarthy, S. Petrovic, <b>R. Qu*</b> . Knowledge Discovery in Hyper-Heuristic Using Case-Based Reasoning on Course Timetabling, <i>PATAT'02</i> , Aug 2002
	E.K. Burke, B. MacCarthy, S. Petrovic, <b>R. Qu*</b> . Case-based Reasoning in Course Timetabling: An Attribute Graph Approach, <i>ICCBR01</i> , LNAI 2080, 2001

Invited talk

“Hybridising constructive heuristics in hyper-heuristics”

Workshop of "Self-tuning, self-configuring and self-generating search heuristics" at the 11th International Conference on Parallel Problem Solving From Nature (PPSN 2010), 11 - 15, September, 2010

#### Grants

Title	Funding Body	Duration	Amount	Investigators/Collaborators
<b>Granted</b>				
Towards More Effective Computational Search	EPSRC (EP/H000968/1)	Sep 2009 – Aug 2014	£ 1,011,159	PI: E.K.Burke; Co-I: G Kendall, N Krasnogor, JD Landa-Silva, A Parkes, S Petrovic, R Qu
Optimisation of Large Scale Logistics Service Network Design and Fleet Scheduling: Novel Models and Optimisation Approaches Based on Hyper-heuristics	National Natural Science Foundation of China (NSFC) Ref: 71001055	Jan 2011 - Dec 2013	RMB177,000 (£17,700)	PI: R. Bai; Co-I: R. Qu, G. Kendall, A. Farjudian
Hybrid Algorithms to Large Scale Portfolio Optimisation	Industrial Mathematics Internship	Jan 2010 - May 2010	£8100	Academic supervisor: R. Qu Industrial supervisor: M. Pont
Dynamic Scheduling and Hyper-heuristic Approaches for Logistics Service Network Design and Fleet Scheduling	Zhejiang Provincial Natural Science Foundation (ZJNSF) Ref: Y1100132	Jun 2010 - Jun 2013	RMB100k (£10,000)	PI: R. Bai Co-I: L. Miao, G. Kendall, R. Qu
Next Generation Decision Support: Automating the Heuristic Design Process	EPSRC (EP/D061571/1)	10.2006 – 09.2011	£2,663,528	PI: E.K.Burke; Co-I: R. Qu, S.Petrovic, G.Kendall, J.Garibaldi, N.Krasnogor, J.D. Landa Silva
Exploring the Interface between Human Factors Research and Operational Research in Engineering	EPSRC Interdisciplinary Research Internships 2009	06.2009 – 12.2009	£2,500	R. Qu, Brendan Ryan, Tony Parry
Developing Next Generation Rostering Software Using Advanced Scheduling Techniques	KTP Scheme (KTP007074)	09.2008 – 08.2010	£83,530	PI: D. Landa-Silva; Co-I: E.K. Burke, R. Qu
Prioritising Ways to Reduce the Impact of Maintenance on Journey Times	Scott Wilson (Highway Agency)	01.2008-12.2008	£50,000	T. Parry, S. Cobb, R. Qu, B. Ryan
Handling Uncertainties in Transportation and Logistics Using Granular Computing and Hyper-heuristics	Ningbo Municipal Science and Technology Bureau, China	09.2008 – 12.2011	£10,000	PI: R. Bai; Co-I: R. Qu, E. Burke, A. Bargiela