Rong Qu

HEA Fellowship, IEEE Senior Member, PhD, BSc
Associate Professor, School of Computer Science
University of Nottingham

Esteems & Honours

Research
Lead author of more than 10 top cited publications (by the ISI Essential Science Indicators) at international leading journals

More than 50 peer-reviewed papers at international journals since 2000

Funding
Principal and Co-investigator on 10 grants projects funded by external research councils, incl. EU, EPSRC and KTP, etc.

Supervision
Principle supervisor of 10+ PhD students, joint supervisor of 6 external PhD students

Academic esteem
JSPS Invited Fellow at Computational Intelligence Labo. at Osaka Prefecture University, Japan

Guest editor of a special issue at Journal of Scheduling

Associate Editor at IEEE Computational Intelligence Magazine

UNIVERSITY & ACADEMIC SERVICE

JSPS Invited Fellow at Computational Intelligence Labo. at Osaka Prefecture University, Japan

Vice chair of Intelligent Systems Applications Technical Committee at IEEE Computational Intelligence Society

Associate Editor at IEEE Computational Intelligence Magazine

IEEE Senior Member since 2012

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

Program/conference chair

Conferences/Symposiums	Place and Date	Co-chair(s)
Special Session on Automated Design: Hyper-heuristics and Metaheuristics at CEC'2016, WCCI'2016	Vancouver, Canada, 25-29, July, 2016	Prof. N. Pillay
2016 IEEE Symposium on Computational Intelligence in Scheduling and Network Design (CISND'16) at SSCI'2016	December 6-9, 2016, Athens, Greece	Dr. R. Bai, Prof. N Pillay, Prof. H. Ishibuchi
2015 IEEE Symposium on Computational Intelligence in Scheduling CISched'15 at 2015 IEEE Symposium Series on Computational Intelligence SSCI'2015	December 7-10, 2015, Cape Town, South Africa	Dr. E. Ozcan
Special Session on Hypeheuristics in Scheduling at MISTA'2015	Prague, Czech Republic, 25-28 Aug 2015	Prof. N. Pillay
Special Session on Evolutionary Computation in Hyper-heuristics at CEC'2015	25-28 May, 2015, Sendai, Japan.	Prof. N. Pillay
Special Session on Evolutionary Computation in Combinatorial Optimization at CEC'2014, WCCI'2014	July, 2014, Beijing, China	Prof. S. Uyar, Prof. M. Toulouse
Special Session on Evolutionary Computation in Scheduling and Combinatorial Optimization at 2013 IEEE Congress on Evolutionary Computation (IEEE CEC 2013)	June 20-23, 2013, Cancun, Mexico	Dr. D. Landa-Silva, Prof. KC Tan
Special Session on Evolutionary Computation in Scheduling at	June 10-15, 2012,	Prof. KC Tan

2012 IEEE Congress on Evolutionary Computation (IEEE CEC 2012)	Brisbane, Australia.	
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. S. Uyar
2013 IEEE Symposium on Computational Intelligence in Scheduling (CISched2013) at IEEE Symposium Series on Computational Intelligence (SSCI 2013)	Singapore 16-19 April, 2013	Prof. L. Wang
2011 IEEE Symposium on Computational Intelligence in Scheduling	Paris, April, 2011	Dr. E. Ozcan, Prof M. Gendreau
Special Session of Evolutionary Computation in Scheduling at IEEE Congress on Evolutionary Computation	Barcelona, Spain, 18-23 July, 2010	Prof. C.K. Ting, Dr G. Vanden Berghe, Prof. K.C. Tan
2009 IEEE Symposium on Computational Intelligence in Scheduling	Nashville, TN, USA, March30 - April 2, 2009	Prof. T.K. Chen and Prof. M. Gendreau
Special session on Computational Intelligence Methods in Finance and Management at The 6th International Conference on Computational Management Science	Geneva, May 1-3, 2009	Prof. E. Tsang
The 25th Workshop of the UK Planning and Scheduling Special Interest Group	Nottingham, 14-15 December, 2006	

Invited research seminars at conferences, external universities and companies:
  − Invited talk "Hybridising constructive heuristics in hyper-heuristics", Self-tuning, self-configuring and self-generating search heuristics at the 11th International Conference on Parallel Problem Solving From Nature (PPSN 2010)
  − University of Osnabruck, Germany
  − Atoss Software AG, Munich, Germany
  − ORETC, Gouda, The Netherlands
  − Xi'an Jiaotong University, Xi'an, China
  − Shanghai Jiaotong University, Shanghai, China
  − Xidian University, Xi'an, China

Research

Main research interests include the modelling and optimisation for large scale real world combinatorial optimisation problems
  - Transport scheduling in logistics, Personnel scheduling, Telecommunication network routing, Portfolio optimisation, and Timetabling problems, etc.
  - Evolutionary algorithms, Mathematical programming, Constraint programming in operational research and artificial intelligence, and Hybridisations of these techniques
  - Collaboration with practitioners in a range of industries in projects sponsored by EPSRC, Royal Society and Knowledge Transfer Partnership, etc.
  - Intelligent algorithms underpinned the spin-out companies EventMAP and StaffRoster®.

Selected publications

Citations and h-index at ISI Essential Science Indications, Scopus and Google Scholar (accessible 26.06.2017)

	ISI	Scopus	Google Scholar
Total citations	428	2065	4835
h-index	9	22	73

Publications marked with † are where the applicant is the main/corresponding author.

Peer-reviewed journal papers ISI Essential Science Indicators Highly Cited Publications (accessible 26.06.2017)

1. **R. Qu†**, E.K. Burke, B. McCollum, L.T.G. Merlot, S.Y. Lee. A Survey of Search Methodologies and Automated System Development for Examination Timetabling. *Journal of Scheduling*, **12**(1): 55-89, 2009. doi: 10.1007/s10951-008-0077-5. **Top 1% cited**

2. **R. Qu†**, E.K. Burke, B. McCollum. Adaptive Automated Construction of Hybrid Heuristics for Exam Timetabling Problems. *European Journal of Operational Research*, **198**(2): 392-404, 2009. doi:10.1016/j.ejor.2008.10.001. **Top 10% cited**

3. **R. Qu†**, E.K. Burke. Hybridisations within a Graph Based Hyper-heuristic Framework for University Timetabling Problems. *Journal of Operational Research Society*, **60**: 1273-1285, 2009. doi: 10.1057/jors.2008. **Top 0.1% cited**

4. **R. Qu†**, co-authors: E.K. Burke, A. J. Eckersley, B. McCollum, S. Petrovic. "Hybrid Variable Neighbourhood Approaches to University Exam Timetabling. European Journal of Operational Research, 206: 46-53, 2010. doi: 10.1016/j.ejor.2010.01.044. **Top 10% cited**

5. **R. Qu†**, N. Pham, R. Bai, G. Kendall. Hybridising Heuristics within an Estimation Distribution Algorithm for Examination Timetabling. Applied Intelligence, 42(4): 679-693. 2015, doi: 10.1007/s10489-014-0615-0

6. **R. Qu†**, Y. Xu, J. Castro, D. Landa-Silva. Particle Swarm Optimization for the Steiner Tree in Graph and Delay-Constrained Multicast Routing Problems. Journal of Heuristics, 19(2): 317-342, 2013. doi: 10.1007/s10732-012-9198-2. **Top 10% cited**

7. F. He and **R. Qu†**. A Constraint Programming based Column Generation Approach to Nurse Rostering Problems. Computers & Operations Research, 39(12): 3331-3343, December 2012. doi: 10.1016/j.cor.2012.04.018

8. P. Brucker, **R. Qu†**, E.K. Burke. Personnel Scheduling: Models and Complexity. European Journal of Operational Research, 210(3): 467-473, 2011. doi: 10.1016/j.ejor.2010.11.017. **Top 10% cited**

9. **R. Qu†**, co-authors: E.K. Burke, S. Petrovic, Case Based Heuristic Selection for Timetabling Problems. Journal of Scheduling, 9: 115-132, 2006. doi: 10.1007/s10951-006-6775-y. **Top 1% cited**

10. **R. Qu†**, co-authors: E.K. Burke, B. MacCarthy, S. Petrovic. Multiple-Retrieval Case-Based Reasoning for Course Timetabling Problems. Journal of Operations Research Society, 57(2): 148-162, 2006. doi: 10.1057/palgrave.jors.2601970. **Top 10% cited**

11. P. Brucker, E.K. Burke, T. Curtois, **R. Qu†**, G. Vanden Berghe. A Shift Sequence Based Approach for Nurse Scheduling and a New Benchmark Dataset. *Journal of Heuristics*, 16(4): 559-573, 2010. doi: 10.1007/s10732-008-9099-6. **Top 10% cited**

12. E.K. Burke, S. Petrovic, **R. Qu†**. A Graph-Based Hyper-Heuristic for Educational Timetabling Problems, *European Journal of Operational Research*, **176**: 177-192, 2007. doi:10.1016/j.ejor.2005.08.012. **Top 1% cited**

13. E.K. Burke, S. Petrovic, **R. Qu†**. Case-Based Heuristic Selection for Timetabling Problems, *Journal of Scheduling*, **9**: 115-132, 2006. doi: 10.1007/s10951-006-6775-y. **Top 1% cited**

14. E.K. Burke, B. MacCarthy, S. Petrovic, **R. Qu†**. Multi-Retrieval Case-based Reasoning for Course Timetabling Problems, *Journal of Operational Research Society*, **57**(2): 148-162, 2006. doi:10.1057/palgrave.jors.2601970. **Top 10% cited**

15. E.K. Burke, B. MacCarthy, S. Petrovic, **R. Qu†**. Structured Cases in Case-Based Reasoning-Re-using and Adapting Cases for Timetabling Problems, *Knowledge-Based Systems*, **13**(2-3): 159-165, 2000. doi: 10.1016/S0950-7051(00)00057-5

16. N.R. Sabar, M. Ayob, G. Kendall, **R. Qu**. A Graph Coloring Constructive Hyper-Heuristic for Examination Timetabling Problems. Applied Intelligence, 37(1): 1-11, 2012. doi: 10.1007/s10489-011-0309-9. **Top 10% cited**

17. Y. Xu and **R. Qu**. A Hybrid Scatter Search Meta-heuristic for Delay-constrained Multicast Routing Problems. Applied intelligence, 2010, doi: 10.1007/s10489-010-0256-x. **Top 10% cited**

18. Y. Xu and **R. Qu**. Solving Multi-objective Multicast Routing Problems by Evolutionary Multi-objective Simulated Annealing Algorithms with Variable Neighborhoods. Journal of Operational Research Society, 2010, doi:10.1057/jors.2010.138.

19. H. Xing, **R. Qu**, L. Bai, Y. Ji. On Minimizing Coding Operations in Network Coding Based Multicast: An Evolutionary Algorithm. Applied Intelligence, 41(3): 820-836, 2014. doi: 10.1007/s10489-014-0559-4

20. E.K. Burke, J. Li and **R. Qu**. A Pareto-Based Search Methodology for Multi-objective Nurse Scheduling. Annals of OR, 196(1): 91-109 2012. doi: 10.1007/s10479-009-0590-8

21. A. Soghier, **R. Qu**. Adaptive selection of heuristics for assigning time slots and rooms in exam timetables. Applied Intelligence, 39(2), 438-450, 2013, doi: 10.1007/s10489-013-0422-z

22. N.R. Sabar, M. Ayob, G. Kendall, **R. Qu**. A Dynamic Multi-Armed Bandit-Gene Expression Programming Hyper-Heuristic for Combinatorial Optimization Problems. IEEE Transactions on Cybernetics, 45(2): 217 - 228, 2015. doi: 10.1109/TCYB.2014.2323936

23. G. Kendall, R. Bai, J Blazewicz, P. De Causmaecker, M Gendreau, R John, J Li, B McCollum, E Pesch, R Qu, N Sabar, G Vanden Berghe, A Yee. Good Laboratory Practice for Optimization Research. Journal of the Operational Research Society, 67: 676-689, 2016. doi: 10.1057/jors.2015.77

24. J. Arturo Castillo-Salazar, D. Landa-Silva, **R. Qu**. Workforce scheduling and routing problems: literature survey and computational study. Annals of Operations Research, 239(1): 39-67, 2016. doi: 10.1007/s10479-014-1687-2

25. Y. Wang, L. Sun, **R. Qu**, G. Li. Price and Service Competition with Maintenance Service Bundling. Journal of Systems Science and Systems Engineering, 24(2): 168-189, 2015, doi: 10.1007/s11518-015-5267-z

26. J. Li, R. Bai, Y. Shen, **R. Qu**. Search with Evolutionary Ruin and Stochastic Rebuild: a Theoretic Framework and a Case Study on Exam Timetabling. European Journal of Operational Research, 242(3): 798-806, 2015, doi: 10.1016/j.ejor.2014.11.002

27. N.R. Sabar, M. Ayob, G. Kendall, **R. Qu**. The Automatic Design of Hyper-heuristic Framework with Gene Expression Programming. IEEE Transactions on Evolutionary Computation, doi: 10.1109/TEVC.2014.2319051. 19(3): 309 - 325, 2015.

28. K. Lwin, **R. Qu**, Graham Kendall. A learning-guided Multi-objective Evolutionary Algorithm for Constrained Portfolio Optimization. Applied Soft Computing, 24: 757-772, 2014. doi: 10.1016/j.asoc.2014.08.026

29. F. He, **R. Qu**. A Two-Stage Stochastic Mixed-Integer Program Modelling and Hybrid Solution Approach to Portfolio Selection Problems. Information Sciences, 289, 190-205, 2014. doi: 10.1016/j.ins.2014.08.028

30. H. Xing, **R. Qu**, G. Kendall, R. Bai. A Path-Oriented Encoding Evolutionary Algorithm for Network Coding Resource Minimization. Journal of the Operational Research Society, 65: 1261-1277, 2014. doi: 10.1057/jors.2013.79. **Ten Influential Articles at JORS** (accessible in November 2013)

31. Z. Wang, H. Xing, T. Li, Y.Yang, **R. Qu**, and Y. Pan. A Modified Ant Colony Optimization Algorithm for Network Coding Resource Minimization. IEEE Transactions on Evolutionary Computation, 20(3): 325-342, 2016. doi: 10.1109/TEVC.2015.2457437

32. R.L. Pinheiroa, D. Landa-Silvaa, **R. Qu**, E Yanagab, and A.A. Constantino. An Application Programming Interface with Increased Performance for Optimisation Problems Data. Journal of Management Analytics, 3(4): 305-332, 2016, doi: 10.1080/23270012.2016.1233514.

33. K. Lwin, **R. Qu**, B. MacCarthy. Mean-VaR Portfolio Optimisation A Nonparametric Approach. European Journal of Operational Research, 260(2): 751-766, 2017, doi: 10.1016/j.ejor.2017.01.005.

34. H. Xing, S. Li, Y. Cui, L. Yan, W. Pan, **R. Qu**. A Hybrid EDA for Load Balancing in Multicast with Network Coding. Applied Soft Computing, 59: 363-377, 2017, doi: j.asoc.2017.06.003.

35. H. Xing, Z. Wang, T. Li, H. Li, **R. Qu**. An Improved MOEA/D Algorithm for Multi-objective Multicast Routing with Network Coding. Applied Soft Computing, 59: 88-103, 2017, doi: j.asoc.2017.05.033.

36. P. Brucker and **R. Qu**†. Network Flow Models for Intraday Personnel Scheduling Problems. Annals of OR, 218(1): 107-114, 2014. doi: 10.1007/s10479-012-1234-y

37. E. K. Burke, M. Gendreau, M. Hyde, G. Kendall, G. Ochoa, E. Ozcan, **R. Qu**. Hyper-heuristics: A Survey of the State of the Art. Journal of the Operational Research Society, 64: 1695-1724, 2013, doi: 10.1057/jors.2013.71. **Ten Influential Articles at JORS** (accessible in November 2013). **Top 10% cited**

38. K. Lwin, **R. Qu**. Hybrid Algorithm for Constrained Portfolio Selection Problem. Applied Intelligence, 39(2): 251-266, 2013. doi: 10.1007/s10489-012-0411-7. **Top 10% cited**

39. N. R. Sabar, M. Ayob, G. Kendall, and **R. Qu**. Grammatical Evolution Hyper-heuristic for Combinatorial Optimization problems. IEEE Transactions on Evolutionary Computation, 17(6): 840-861, 2013. doi: 10.1109/tevc.2013.2281527

40. J. Li, E.K. Burke and **R. Qu**. A Pattern Recognition Based Intelligent Search Method: Two Case Studies on the Assignment Problem. Applied Intelligence, 36(2): 442-453, 2012. doi: 10.1007/s10489-010-0270-z. **Top 10% cited**

41. R. Bai, G. Kendall, **R. Qu**, J. Atkin. Tabu assisted guided local search approaches for freight service network design. Information Sciences, 189: 266-281, 2012. doi: 10.1016/j.ins.2011.11.028

42. E.K. Burke, N. Pham, **R. Qu**, J. Yellen. Linear Combinations of Heuristics for Examination Timetabling. Annals of OR, 194(1): 89-109, 2012. doi: 10.1007/s10479-011-0854-y

43. J. Li, E.K. Burke, T. Curtois, S. Petrovic and **R. Qu**. The Falling Tide Algorithm: a New Multi-objective Approach for Complex Workforce Scheduling. Omega - International Journal of Management Science, 40(3): 283-293 2012. doi: 10.1016/j.omega.2011.05.004. **Top 10% cited**

44. E.K. Burke, J. Li and **R. Qu**. The Application of Neural Network and Logistic Regression in the Hyper-heuristic Search, *Knowledge-Based Systems*, 2010.

45. E.K. Burke, T. Curtois, **R. Qu** and G. Vanden Berghe. A Time Predefined Variable Depth Search for Nurse Rostering. INFORMS Journal on Computing, 25: 411-419, 2013. doi: 10.1287/ijoc.1120.0510. **Top 10% cited**

46. Y. Xu, **R. Qu**, R. Li. A Simulated Annealing based Genetic Local Search Algorithm for Multi-objective Multicast Routing Problems. Annals of Operations Research, 260: 527-555, 2013, doi: 10.1007/s10479-013-1322-7. **Top 10% cited**

47. M.Hadwan, M. Ayob, N.R. Sabar, **R. Qu**. A Harmony Search Algorithm for Nurse Rostering Problems. Information Sciences, 233: 126-140, 2013. doi: 10.1016/j.ins.2012.12.025. **Top 10% cited**

48. H. Xing, **R. Qu**. A Nondominated Sorting Genetic Algorithm for Bi-objective Network Coding Based Multicast Routing Problems. Information Sciences. doi: 10.1016/j.ins.2013.01.014 233: 36-53, 2013. **Top 10% cited**

49. N.R. Sabar, M. Ayob, G. Kendall, **R. Qu**. A Honey-bee Mating Optimization Algorithm for Educational Timetabling Problems. European Journal of Operational Research, 216(3), 533-543, 2012. doi: 10.1016/j.ejor.2011.08.006. **Top 10% cited**

50. B. McCollum, P. McMullan, B. Paechter, R. Lewis, A. Schaerf, L. Di Gaspero, A. J. Parkes, **R. Qu**, E.K. Burke. Setting the Research Agenda in Automated Timetabling: The Second International Timetabling Competition. *INFORMS Journal of Computing*, 22(1): 120-130, 2010. doi: 10.1287/ijoc.1090.0320. **Top 1% cited**

51. E.K. Burke, J. Li, **R. Qu**. A Hybrid Model of Integer Programming and Variable Neighbourhood Search for Highly-Constrained Nurse Rostering Problems. *European Journal of Operational Research*, 203(2), 484-493, 2010, doi:10.1016/j.ejor.2009.07.036. **Top 1% cited**

52. E.K. Burke, A.J. Eckersley, B. McCollum, S. Petrovic, **R. Qu†**. Hybrid Variable Neighborhood Approaches to University Exam Timetabling. *European Journal of Operational Research*, 206: 46-53, 2010

53. E. K. Burke, J. Li, **R. Qu**. Pareto-Based Optimization for Multi-objective Nurse Scheduling, to appear at *Annals of OR*, 2010, doi: 10.1007/s10479-009-0590-8

54. B. Ryan, **R. Qu**, A. Schock, T. Parry. Integrating human factors and operational research in a multidisciplinary investigation of road maintenance. Ergonomics, 54(5): 436-452, 2011. doi: 10.1080/00140139.2011.562983.

55. B. McCollum, P. McMullan, E.K. Burke, A.J. Parkes, **R. Qu**, A New Model for Automated Examination Timetabling, 2009. Accepted by *Annals of OR*, to appear in 2010. **Top 10% cited**

56. H. Xing and **R. Qu**. A Population Based Incremental Learning for Network Coding Resources Minimization. IEEE Communication Letters, 99: 1-3, 2011. doi: 10.1109/LCOMM.2011.051911.110274

57. H. Xing and **R. Qu**. A Compact Genetic Algorithm for the Network Coding Based Resource Minimization Problem. Applied Intelligence, 36(4): 809-823, 2012. doi: 10.1007/s10489-011-0298-8. **Top 10% cited**

58. Y. Xu and **R. Qu**. An Iterative Local Search Approach based on Fitness Landscapes Analysis for the Delay-constrained Multicast Routing Problem. Computer Communications, 35: 352-365, 2012 doi: 10.1016/j.comcom.2011.10.011

59. E.K. Burke, T. Curtois, **R. Qu**, G. Vanden Berghe. A Scatter Search for the Nurse Rostering Problem, *Journal of Operational Research Society*, 61: 1667-1679, 2010. **Top 10% cited**

60. J. Li, E.K. Burke and **R. Qu**. Integrating Neural Networks and Logistic Regression to Underpin Hyper-heuristic Search". Knowledge-Based Systems, 24(2): 322-330, 2010. doi: 10.1016/j.knosys.2010.10.004

61. E.K. Burke, T.E. Curtois, G. Post, **R. Qu**, B. Veltman, A Hybrid Heuristic Ordering and Variable Neighbourhood Search for the Nurse Rostering Problem, *European Journal of Operational Research*, **2**: 330-341, 2008. doi:10.1016/j.ejor.2007.04.030. **Top 1% cited**

Book/Book chapters/Journal Editorials

1. **R. Qu** (ed.) Proceedings of the 25th Workshop of the UK Planning and Scheduling Special Interest Group (PlanSIG2006), December, 2006, Nottingham, UK. ISSN 1368-5708

2. E.K. Burke, M. Dror, S. Petrovic, **R. Qu†**. Hybrid Graph Heuristics in Hyper-Heuristics Applied to Exam Timetabling Problems. B.L. Golden, S. Raghavan and E.A. Wasil (eds.). *The Next Wave in Computing, Optimization, and Decision Technologies*. 79-91. Springer, 2005. **Top 10% cited**

3. **R. Qu†**, M. Fox, D. Long (Guest editors). Special Issue of Artificial Intelligence Planning and Scheduling at Journal of Scheduling, June, **12**(3), 2009.

Awards

- **R. Qu†** and E.K. Burke. Hybridisations within a Graph Based Hyper-heuristic Framework for University Timetabling Problems. Journal of Operational Research Society, 60: 1273-1285, 2009. doi: 10.1057/jors.2008.102. **Top 5 highly cited paper at JORS 2009/2010**.

- **R. Qu†**, co-authors: E.K. Burke, B. McCollum, A. Meisels, S. Petrovic. A Graph-Based Hyper-Heuristic for Educational Timetabling Problems. European Journal of Operational Research, 176: 177-192, 2007. doi: 10.1016/j.ejor.2005.08.012. **Five Year Top Cited Article EJOR 2007-2011 Award**.

- E.K. Burke, B. MacCarthy, S. Petrovic, **R. Qu†**. Structured Cases in Case-Based Reasoning-Re-using and Adapting Cases for Timetabling Problems
  Best technical papers at *Expert Systems 1999*, and selected in special issue of Knowledge Based System.

PhD Research Projects

Project Title	Duration
As principle supervisor	
Intelligent Algorithms for Real World Transportation Scheduling	09.2014 –

Advanced Computational Methods in Portfolio Management	09.2010 – 05.2016
Evolutionary Computational Algorithms for Portfolio Optimisation	09.2010 – 01.2014
Advanced hybrid meta-heuristics in portfolio management	09.2010 – 09.2013
Resource Optimization in Network Coding based Multicast	09.2009 – 09.2013
Integration of Constraint Programming and OR Techniques on timetabling and nurse rostering	09.2007 – 09.2010
Fundamental study on search space of hyper-heuristics for optimisation problems	09.2006 – 09.2009
Adaptive hyper-heuristics on timetabling problems	09.2006 – 09.2009
Meta-heuristics for multicast network routing	09.2006 – 09.2009
Hybrid meta-heuristics on Nurse Rostering	09.2006 – 09.2009
Novel Metaheuristics in Health Personnel Rostering	09.2003 – 10.2007
A Case Based Approach to Heuristic Selection for Timetabling	09.2003 – 10.2006
As co-supervisor	
Cyber Security for Connected and Autonomous Vehicles	09.2016 –
Dynamic Programming for Workforce Scheduling	09.2014 –
Dynamic Investment Re-Allocation	09.2014 –
Workforce Scheduling and Routing Problem	09.2012 – 06.2016
Modelling and Computational Methods in Vehicle Routing	09.2011 – 05.2016
Hierarchical Methods in Nurse Rostering	09.2011 – 09.2016
Hyper-heuristics for course timetabling	07.2006 – 07.2009
Multi-objective Meta-Heuristics to Complex Combinatorial Problems	05.2008 – 04.2011
Hierarchical methods on nurse rostering problems	01.2008 – 01. 2013
Data pre-processing on problem space of university timetabling problems	07.2008 – 07.2011
Hyperheuristics in timetabling and optimization	09.2009 – 09.2012
Hybridising meta-heuristics with OR techniques in inventory management	01.2010 – 12.2010
Meta-heuristic criteria in scheduling algorithms in mechanical production	01.2010 – 05.2010

External PhD co-supervision:

University and County	Student	Supervisor
University of Nottingham Malaysia Campus, Malaysia	Geetha Barskaran, Siti Khatijah Nor Abdul Rahim	Professor A. Bargiela
Xi'an Jiaotong University, China	Yi Wang	Professor L. Sun
University of Nottingham Ningbo Campus, China	Jianjun Chen, K. A. D. N. K. Wimalawarne	Dr Bai, Dr Woodward
University of Kosice, Slovak Republic	Robert Jurcisin	Professor R. Bartak
University of Kebangsaan, Malaysia	Nasser R. Sabar	Dr. M. Ayob

Grants

Title	Funding Body	Duration	Amount	Investigators/Collaborators
Encouraging Lifelong Learning for an Inclusive and Vibrant Europe	European Commission H2020 (EU 693989)	Oct 2016 - Sept 2019	GBP392k at CS UoN, GBP1.6m at Consortium	PI: R Qu, Co-I: R John, J Atkin
Energy Efficient Freight Transport Scheduling in Supply Chain Logistics	Royal Society - International Exchanges Scheme	1 April 2013 - 31 March 2015	GBP11,830	UK PI: R. Qu; UK Co-I: J. Atkin, D. Landa-Silva Exchange PI: R. Bai
Routing and Rostering in Healthcare Workforce Management	TSB-KTP (KTP 8992)	Mar 2013 – Feb 2016	GBP122,159	Knowledge Base Supervisor: R. Qu; Lead Academic: J.D. Landa-Silva
Towards More Effective Computational Search	EPSRC (EP/H000968/1)	09.2009 – 08.2014	£ 1,011,159	PI: E.K.Burke; Co-I: G Kendall, N Krasnogor, JD Landa-Silva, A Parkes, S Petrovic, 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
Hybrid Algorithms to Large Scale Portfolio Optimisation	Industrial Mathematics Internship	01.2010 – 05.2010	£8130	Academic advisor: R. Qu; Industrial advisor: M. Pont
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	01. 2011 – 12. 2013	177K RMB	PI: R. Bai; Co-I: R. Qu, G. Kendall, A. Farjudian
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
Dynamic Scheduling and Hyper-heuristic Approaches for Logistics Service Network Design and Fleet Scheduling	Zhejiang Provincial Natural Science Foundation (ZJNSF) Ref: Y1100132	06. 2010 – 06. 2013	100K RMB	PI: Dr. Bai, Co-I: L. Miao, G. Kendall, R. Qu
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

TEACHING & LEARNING

Module convenors
- Artificial Intelligence Programming (UG module)
- Introduction to Artificial Intelligence (UG module)
- Decision Support Methodologies (PGT module)

UG projects
- Supervision of final year projects
- Supervision of group project

Post-graduate supervisions
- PhD supervisions
- MSc project supervisions in Computational Finance with Business School

UG and PG tutorials

Invited course on "Artificial Intelligence Search Methodologies"
- Supported by the Erasmus teaching mobility scheme
- Design and deliver an UG course with coursework at University of Applied Sciences Konstanz, Germany, 18th – 22nd May, 2009

Invited course on "Theory and Application of Constraint Programming"
- Supported by the "Foreign Excellent Academic Course Professor Plan" at Xi'an Jiaotong University, China
- Design and deliver a PG course with coursework at Xi'an Jiaotong University, 6th – 17th July, 2009

Invited seminar on "Recent Research on Nurse Rostering and Scheduling"
- Research seminar to PhD students and academic staff in the Institute of Electronic Engineering, XiDian University, China, March, 2008

Course Director:
- UG course "E-commerce and Digital Business" (2006/07 – 2008/2009)
- UG course "Computer Science and Management Studies" (2008/09)
- PG course "Computer Science and Entrepreneurship" (2009/10 -)

Nominated for 2009 Lord Dearing Awards of Excellence in Learning and Teaching

Invited summer school course (with Dr G. Ochoa) on "Recent Hyper-heuristics in Scheduling and Optimizations"
- Supported by Istanbul Technology University, Turkey
- Design and deliver a one-week seminar on state-of-the-art research on hyper-heuristics in August 2007
- Audience includes researchers and developers in academic institutes and industry

School Marketing officer (2007 - present)
- School marketing focus group member: collecting students feedback on school perspectives; advertising and marketing at school web site; assist of "A Day in 8" students' competition in the school; assist of marketing at group project open day
- School representative visit to Ningbo Campus welcoming new cohort
  Introductory talks on school open days

PERSONAL INFORMATION

Lecturer May 2005 – present
School of Computer Science, The University of Nottingham, UK, NG8 1BB

Post-Doctoral Research Associate August 2001 – May 2005
School of Computer Science, The University of Nottingham, UK, NG8 1BB

Assistant Engineer July 1996 – September 1998
Xi'an Heavy Machinery Institute of BaoGang Steel Corp., China

PhD in Computer Science, December 2002
Case-Based Reasoning for Course Timetabling Problems
University of Nottingham, Nottingham, U.K.

BSc in Computer Science, July 1996, Honours
Computer Science and Its Applications
XiDian University, Xi'an, Shaanxi, 710071, China