

# Prof. Barry O’Sullivan, BTech(UL), PhD(NUI), FEurAI, FIAE, FICS, MRIA

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## Brief Biography Statement

Professor Barry O’Sullivan, FEurAI, FIAE, FICS, MRIA, is an award-winning academic working in the fields of artificial intelligence, constraint programming, prescriptive analytics (operations research), ethics, and public policy. He contributes to global Track II diplomacy related to disruptive emerging technologies. He is a graduate of the University of Limerick and University College Cork. Professor O’Sullivan is a full professor at the School of Computer Science & IT at University College Cork. He is the founding Director of the Insight Centre for Data Analytics at UCC, founding Director of the SFI Centre for Research Training in Artificial Intelligence, and a Principal Investigator at the Confirm Centre for Smart Manufacturing. He is an Adjunct Professor at Monash University, Australia. In July 2018 Professor O’Sullivan was appointed Vice Chair of the European Commission High-Level Expert Group on AI, supporting Pekka Ala-Pietilä, former President of Nokia, as Chair. In 2019 the HLEG-AI published: *Ethics Guidelines for Trustworthy AI* (April) and *Policy & Investment Recommendations for Trustworthy AI* (June). In 2019 he joined the Scientific Board of AI Watch, an initiative of the European Commission’s Joint Research Centre. In 2020 he was elected a member of the Executive Council of the Association for the Advancement of Artificial Intelligence (AAAI), and was also appointed Chair of the Oversight Board of Health Data Research UK (North), led by the University of Liverpool. Professor O’Sullivan is a Fellow and a past President of the European AI Association (EurAI). He is a member of the Executive Board of AI4EU the European AI-on-demand Platform. He advises the the Leuven.ai institute at KULeuven (Belgium) and the Computational Sustainability Network, a network of universities in the USA, led by Cornell, involving Princeton, Stanford, CMU, Georgia Tech, and others. He has received UCC’s Leadership Award (2013), the Association for Constraint Programming’s Distinguished Service Award (2014), was Science Foundation Ireland Researcher of the Year (2016), UCC Researcher of the Year (2017), and elected member of the Royal Irish Academy (2017), Ireland’s highest academic accolade. He is a Fellow of the Irish Computer Society (2018) and the Irish Academy of Engineering (2019). In 2019 he was appointed by the Minister for Health to the Health Research Consent Declaration Committee. He received the IPEC-EATCS Nerode Prize (2020) for his work on parameterised complexity. Professor O’Sullivan has been involved in winning over €300m in R&D funding, of which €50m has supported him and his group at UCC.

## International Leadership

Chair, Steering Committee, [Health Data Research UK North](#) .....from May 2020  
Councillor, [Association for the Advancement of Artificial Intelligence](#) .....from July 2020  
Member (Ministerial Appointment), [Health Research Consent Declaration Committee](#) .....from March 2019  
President, [European Artificial Intelligence Association](#) .....2018-2020  
Vice Chair, [European Commission High-Level Expert Group on Artificial Intelligence](#) .....2018-2020  
Member, [Royal Irish Academy Strategic Planning Committee](#) .....2018-2021  
Deputy President, [European Artificial Intelligence Association](#) .....2016-2018  
Board Member, [European Artificial Intelligence Association](#) .....since 2014  
President, [International Association for Constraint Programming](#) (won Distinguished Service Award) .....2007-2012  
Assisted in the establishment of [EMC Research Europe](#) .....2010  
Council Member, [Analytics Society of Ireland](#) .....since 2009  
Chair, [European Research Consortium for Informatics & Mathematics](#) (ERCIM) WG on Constraints .....since 2006  
Chair, [Artificial Intelligence Association of Ireland](#) .....2007-2016

**Industry & State Body Collaborations.** I have collaborated extensively with British Telecom, United Technologies, EMC, Lucent, Xerox, Bell Labs, Carma, TreeMetrics, Abtran, the Irish Health Services Executive, Irish Defense Forces.

**Conference Organisation.** I have organised several dozen international events, conferences, and workshops.

## Experience & Education – Artificial Intelligence, Operations Research, Constraint Programming, Machine Learning

Full Professor (Chair of Constraint Programming), Computer Science, University College Cork (UCC) .....since 2010  
Founding Director of the SFI [Centre for Research Training in Artificial Intelligence](#) .....2019  
established with funding of €18 million for 120 PhD students over 4 cohorts.

A founding Director of the SFI-funded [Insight Centre for Data Analytics](#), established with the largest research grant ever awarded in the history of the Irish state with a total value of €88 million, including industry contribution, for a 6 year research programme. Refunded in 2018 (€150m of which €50m from Irish State). .....since 2013

Vice Chair & Expert Member, [European Commission High-Level Expert Group on Artificial Intelligence](#) ..since June 2018  
In April 2019 we published the [Ethics Guidelines for Trustworthy Artificial Intelligence](#), which has been adopted by the European Commission as official EU policy. In June 2019 we published [Policy and Investment Recommendations for Trustworthy Artificial Intelligence](#) which sets out a vision for AI in Europe.

Advisory Board Member, [Computational Sustainability Network](#), led from Cornell University involving over a dozen other US-based universities including Stanford University, Princeton University, Carnegie Mellon University, CalTech, Georgia Institute of Technology, University of Southern California, and others. ....since August 2018

CEO, AI Machina (artificial intelligence technology, policy, and strategy, consultancy firm) ..... since 2017

Co-applicant (Principal Investigator), Confirm Centre for Smart Manufacturing (University of Limerick) .....since 2017

Leonardo, [Science Gallery Dublin](#) (the [Leonardo group](#) acts as a ‘brain trust’ of Science Gallery) ..... since 2017

Academic Visitor, [Tyndall National Institute](#) (Ireland’s largest ICT research institute) ..... since 2017

Advisor on Artificial Intelligence, [TechIreland](#) (analysis and promotion of Irish startup ecosystem) ..... since 2017

AI Expert-in-Residence, [SOSV](#) (startup acceleration & venture capital – US, Ireland, China, Taiwan) .....2017-2018

A founding Principal Investigator of the [Centre for Applied Data Analytics Research](#) (CeADAR), funded under the Enterprise Ireland Technology Centres’ Programme (€5 million). ..... 2013-2016

Head of Department of Computer Science, UCC .....2012-2015

Director, Cork Constraint Computation Centre (until the establishment of Insight) ..... 2010-2013

Associate Director, Cork Constraint Computation Centre .....2004-2010

Senior Lecturer, Department of Computer Science, University College Cork .....2004-2010

College Lecturer, Department of Computer Science, University College Cork .....2001-2004

Associated with winning over €250 million in research funding, of which approximately €35 million has directly been for my research group at UCC .....since 2001

PhD (National University of Ireland) in Computer Science (Undergrad at University of Limerick) ..... 1999 (1994)

<b>Honours &amp; Awards – including Member of the RIA, Fellow of EurAI, Distinguished Service and Leadership Awards</b>
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Winner [EATCS-IPEC Nerode Prize](#) ..... 2020

Elected [Fellow of the Irish Academy of Engineering \(FIAE\)](#) ..... since 2019

President, [European Artificial Intelligence Association](#) .....from July 2018

Elected [Fellow of the Irish Computer Society \(FICS\)](#) ..... since 2018

Adjunct Professor, Monash University, Melbourne, Australia ..... since 2018

[University College Cork](#) Researcher of the Year ..... Nov.2017

Elected Member of the [Royal Irish Academy](#) (MRIA), Ireland’s highest academic honour .....March 2017

[Science Foundation Ireland](#) Researcher of the Year ..... Nov.2016

Speaker (Data Analytics & Sustainable Development), [United Nations General Assembly](#), UN, New York ..... Sept.2016

Irish Government representative, [EuroFound Seminar Series](#) (FSS) 2016 *“The impact of digitalisation on work”* ..... 2016

Named amongst *“10 experts unlocking the secrets of big data in the information age”*, and in *“Ireland’s Sci-Tech 100: A galaxy of science and technology stars”* by Silicon Republic ..... 2015

Speaker (Data Analytics & Sustainable Development), [United Nations World Statistics Day](#), UN, New York ..... Oct.2015

Founding Book Series Editor (with Prof.M.Wooldridge, Oxford) *“Artificial Intelligence: Foundations, Theory, and Algorithms”* (Springer) ..... since 2015

Collaborator on [CompSustNet](#), the computational sustainability network, led by Cornell, involving universities such as Stanford, Princeton, CMU, and CalTech .....since 2015

Conference Chair, [George Boole Bicentenary Celebration](#) (Cork) ..... 2015

– This was the primary international event celebrating the bicentenary of the birth of George Boole.

Conference Chair, 21st International Conference on Principles and Practice of Constraint Programming ([CP 2015](#)) and the 31st International Conference on Logic Programming ([ICLP 2015](#)) .....2015

International Association for Constraint Programming [Distinguished Service Award](#) .....2014

– **Citation:** *“For contributions to the field of constraint programming through sustained service providing multi-faceted leadership at the national, European, and broader international level, and as the longest serving ACP President.”*

Program Chair, [20th International Conference on the Principles & Practice of Constraint Programming](#) .....2014

Program Co-Chair (with Gerhard Friedrich), [International Conference on Prestigious Applications of AI](#) ..... 2014

Elected to the six member Board of the [European Coordinating Committee for Artificial Intelligence](#) (now EurAI) ... 2014

– ECCAI (EurAI) has more than 4500 members across 27 countries, making it the largest AI society in the world

Conference Co-Chair (with Helmut Simonis), [Integration of CP and OR in Artificial Intelligence](#) ..... 2014

Winner, Deployed Application Award, Innovative Applications of AI Conference (Bellevue, WA USA) .....2013

University College Cork Leadership Award .....	2013
Winner, Best Application Paper Award, Constraint Programming Conference .....	2013
<a href="#">Scottish Informatics &amp; Computer Science Alliance</a> Distinguished Visiting Fellow .....	2012
– Visiting at St. Andrews University, Edinburgh University, University of Glasgow, and Dundee University.	
Elected <a href="#">Fellow of the European Artificial Intelligence Association (FEurAI)</a> .....	2012
– <b>Citation:</b> “For pioneering work in the field of AI and outstanding service for the European AI community.”	
– The ECCAI Fellows Program honors only a very small percentage of the total membership of all ECCAI member societies (up to a maximum of 3%). ECCAI has more than 4500 members across 27 countries.	
Elected <a href="#">Senior Member of the Association for the Advancement of Artificial Intelligence</a> .....	2012
– He was first Irish person to receive this recognition, and only the second European.	
First Irish scientist to give an <a href="#">Invited Talk at AAAI</a> .....	2010
– This is the annual meeting of the Association for the Advancement of Artificial Intelligence.	
“Rising Star of Irish Science”, Science Foundation Ireland .....	2010
– Listed amongst the “10 Rising Stars” of Irish Science by Science Foundation Ireland in their 2010 anniversary publication entitled “Celebrating 10 Years of Discovery”; he was the only computer scientist so recognized.	
Winner, IEEE Ramamoorthy Award .....	2007
<a href="#">Science Foundation Ireland (SFI)</a> Principal Investigator .....	since 2006

### Editorial Boards

Book Series Editor (with Prof. Wooldridge, Oxford) “[Artificial Intelligence: Foundations, Theory, & Algorithms](#)” (Springer).  
 Currently Editorial Board Member: [Journal of Artificial Intelligence Research](#); [Applied Informatics](#) (Springer).  
 Previously Editorial Board Member: [Constraints Journal](#) (Springer); [Artificial Intelligence Review](#) (Springer).

### International External Examiner Roles

I have acted as External Examiner for PhD dissertations at: Oxford University, Cambridge University, St. Andrews University, University of British Columbia, University of Melbourne, KU Leuven, University of Montpellier, Universitat Politècnica de Catalunya, University of Paris, Strathclyde University, University of Limerick, and many others.

### Research Funding

I list my research funding history below. On the right-hand side I indicate the amount of funding under my direct control. In some cases, e.g. SFI Research Centre, SFI CSET and PI Awards, the total award might be larger so I also note the full amount on the left. I break out grants by the year of their start-date. Unless otherwise stated, I am a/the Principal Investigator or Co-applicant. For SFI Research Centres I include the industry cash requirement associated with these awards.

**Total value of research grants I have been involved in since 2001: ..... approx. €300 million**

**Total funding portion for research at UCC: ..... approx. €50 million**

#### 2019–2021

- I have had several H2020 grants funded in 2019/2020 ..... €1.6 million  
 These are currently under negotiation with the Commission and include:  
 STAIRWAI (ICT-49-2020), ASSISTANT (ICT-38-2020), TAILOR (ICT-48-2020),  
 VISION (ICT-48-2020), HumanE-AI-Net (ICT-48-2020), and BRAINE (ECSEL-2019)  
**Total Award €45 million**

#### 2018–2019

- Insight Centre for Data Analytics ..... €15 million  
 Science Foundation Ireland Research Centre  
 Other Partners: University College Dublin  
 Dublin City University, National University of Ireland Galway  
**Total Award (inclusive of industry cash contracts): €100 million (approx)**
- SFI Centre for Research Training in Artificial Intelligence ..... €3.5 million  
 Science Foundation Ireland Research Centre  
 Other Partners: University College Dublin  
 Dublin City University, National University of Ireland Galway  
**Total Award (inclusive of industry cash contracts): €18 million (approx)**

4. Confirm Centre for Smart Manufacturing ..... €3.96 million  
 Science Foundation Ireland Research Centre  
 Centre Host: University of Limerick  
 Other Partners: Cork Institute of Technology, Tyndall National Institute  
 Limerick Institute of Technology, Athlone Institute of Technology  
**Total Award (inclusive of industry cash contracts): €48 million (approx)**
5. AI4EU – European AI on-demand Platform ..... €550,000  
 European Union H2020 ICT-2017 Research & Innovation Project  
 Other Partners: Lead by Thales France, and involving 80 partners from 21 countries.  
**Total Award: €20,000,000**

#### 2013-2017

6. Insight Centre for Data Analytics ..... €16.5 million  
 Science Foundation Ireland Research Centre  
 Other Partners: University College Dublin  
 Dublin City University, National University of Ireland Galway  
**Total Award (inclusive of industry cash contracts): €88 million (approx)**
7. Centre for Applied Data Analytics Research (CeADAR) ..... €240,418  
 Enterprise Ireland Technology Centre for Data Analytics  
 Other partners: University College Dublin,  
 Dublin Institute of Technology; **Total Award: €900,000**
8. Globally optimized ENergy efficient data Centres (GENIC) ..... €499,200  
 European Union FP7 ICT-2013.6.2 Collaborative Project  
 Other Partners: Cork Institute of Technology (IRL),  
 United Technologies Research Centre (IRL),  
 IBM Research GmbH (CH), Acciona Infraestructuras (ES),  
 ATOS Spain SA (ES), Technical University of Eindhoven (NL);  
**Total Award: €3,295,835**

#### 2010-2012

9. The Distributed Core for Unlimited Bandwidth Supply for all ..... €569,892  
 Users & Services (DISCUS)  
 European Union FP7-ICT-2011-8 Integrated Project  
 Other Partners: Trinity College Dublin (IRL), Alcatel Lucent (DE),  
 Nokia-Siemens Networks (DE), Telefonica (ES), Telecom Italia (IT),  
 Swansea University (UK), IMEC (BE), II-V Lab (FR), Polatis (UK),  
 Tyndall National Institute (IRL), Kungliga Tekniska Hogskolan (SE)  
 November 2012 – October 2015; **Total Award: €8,096,604**
10. Interoperable Monitoring, Diagnosis, and Maintenance Strategies ..... €147,606  
 for Axle Bearings (MAXBE)  
 European Union FP7-SST-2012-RTD-1 Collaborative Project  
 Other Partners: Universidade do Porto (PT), Rede Ferroviria Nacional (PT),  
 Ansaldo (IT), Technische Universitaet Braunschweig (DE), COMSA SA (ES),  
 EVOLEO Technologies (PT), Nuevas Estrategias de Mantenimiento (ES),  
 MERMEC (IT), SKF Industrie SPA (IT), Instituto Superior Tcnico (PT),  
 Dynamics, Structures and Systems International (BE),  
 Vlaamse Vervoersmaatschappij De Lijn (BE), EMEF (PT),  
 I-MOSS (BE), KRESTOS (UK), University of Birmingham (UK)  
 November 2012 – October 2015; **Total Award: €3,000,000**
11. Autonomic Home-Area-Network Infrastructure (AUTHENTIC) ..... €156,744  
 University College Dublin, Cork Institute of Technology,  
 Tyndall National Institute  
 September 2012 – September 2013; **Total Award: €542,858**

12. Inductive Constraint Programming (ICON) ..... €493,500  
European Union FP7-ICT-2011 FET Open (Scored 15/15 in review)  
Other Partners: KU Leuven, University of Pisa, LIRMM Montpellier  
January 2012 – December 2014; **Total Award: €1,818,012**
13. Engineering the POLicy-making Life CYcle (e -POLICY) ..... €359,000  
European Union FP7-ICT-2011-7 (Ranked in the top 6% of proposals)  
Partners: Universita di Bologna (Italy), Regione Emilia Romagna (Italy),  
PPA Energy (UK), INESC Porto (Portugal), ASTER (Italy),  
Fraunhofer Institute (Germany), Universit di Ferrara (Italy),  
The University of Surrey (UK)  
October 2011 – September 2014; **Total Award: €2,559,162**
14. UTRC Collaborative Research (Access Control) ..... €121,211  
UTRC Ireland; July 2011 – December 2012
15. Constraint-Based Cloud Resource Mobility ..... €105,875  
EMC Ireland; July 2011 – June 2012
16. Centre for Telecommunications Value-Chain Research II ..... €810,243  
Science Foundation Ireland; (Funded Investigator)  
June 2011 – May 2016; **Total Award: €15,022,735**
17. New Paradigms in Constraint Programming: Applications in Data Centres ..... €1,058,356  
Science Foundation Ireland; April 2011 – March 2015
18. Timetabling for the Health Services Executive ..... €145,623  
Science Foundation Ireland; January 2011 – June 2012
19. Network Optimisation for Dynamic Transparent Optical Networks ..... €79,280  
IRCSET and Bell Labs Ireland; February 2011 – January 2013
20. Study the Convergence and Co-existence of Energy information Networks ..... €25,000  
Enterprise Ireland; February 2011 – April 2011
21. Optimisation of Commercial Buildings ..... €6,905  
Enterprise Ireland; February 2011 – April 2011
22. Home-Area Network Energy Management System ..... €7,577  
Enterprise Ireland; February 2011 – April 2011
23. Guided Selling ..... €145,000  
Unum Ireland; January 2011 – April 2012
- 2007-2009**
24. The Centre for Telecommunications Value-Chain Research-II (Interim) ..... €126,820  
Science Foundation Ireland CSET 08/CE/1523 (Funded Investigator)  
October 2009 – March 2011, **Total award: €2,658,496**
25. Learning to Detect and Exploit Structure in Real-world Problems ..... €72,009  
IRCSET PhD Fellowship (Mentor); October 2008 – September 2011
26. Approximate Compilation of Flexible Constraints ..... €2,500  
Royal Irish Academy Ulysess Award  
Collaborator: Dr. Helene Fargier, IRIT, Toulouse, France  
March 2008 – March 2010
27. High Performance Constraint-based Placement and Routing for EDA ..... €4,680  
Science Foundation Ireland UREKA Award  
June 2008 – August 2008
28. Algorithmic Decision Theory ..... €5,000  
European Science Foundation COST Action IC0602 (Irish National Rep.)  
July 2007 – June 2010

29. Personalisation & Context-Aware Telecoms ..... €188,595  
 IRCSET Enterprise Partnership  
 Collaborator: Dr. David Lesaint, British Telecom  
 March 2007 – March 2010
30. Constraint Programming for Telecoms Personalisation ..... €188,595  
 IRCSET Enterprise Partnership  
 Collaborator: Dr. David Lesaint, British Telecom  
 January 2007 – January 2010
31. Robust & Expressive Combinatorial Auctions for Procurement ..... €443,413  
 Enterprise Ireland Technology Development Grant  
 January 2007 – December 2009
32. Visual Techniques for the Analysis of Constraint Programming Models ..... €96,300  
 IRCSET Post-doc Fellowship (Mentor)  
 January 2007 – January 2009
33. High Performance Computer Cluster ..... €120,000  
 Science Foundation Ireland Equipment Award 2007
34. Creating Safe, Mobile & Scalable Embedded and Robotic Networks ..... €59,403  
 Science Foundation Ireland ETS Walton Award (Host)  
 Visitor: Professor Brian C. Williams, MIT  
 June 2007 – May 2008

**2004-2006**

35. Employing AI to Make CP Easier to use for Decision Making ..... €1,200,000  
 Science Foundation Ireland Principal Investigator Award 05/IN/1886  
 Co-PI with Eugene Freuder  
 November 2006 – October 2010, **Total award: €3,379,162**
36. A Taxonomy of Global Constraints ..... €96,300  
 IRCSET Post-doc Fellowship (Mentor)  
 October 2006 – September 2008
37. Global Constraints for Nogood Propagation ..... €2,500  
 Enterprise Ireland Ulysses Programme  
 April 2006 – March 2007
38. Similarity and Diversity in Constraint Programming..... €2,500  
 Enterprise Ireland International Collaboration Programme  
 April 2005 – March 2006
39. Automated Constraint Acquisition ..... €110,000  
 IRCSET/CNRS Fellowship  
 April 2005 – March 2007
40. Risk Management for Combinatorial Auctions ..... €83,400  
 Enterprise Ireland Proof Of Concept Programme  
 October 2005 - September 2006
41. The Centre for Telecommunications Value-Chain Research ..... €409,006  
 Science Foundation Ireland CSET O3/CE/31405 (Funded Investigator)  
 Collaborator: Dr. Dan Kilper, Bell Labs, Murray Hill, New Jersey  
 July 2004 – September 2009, **Total Award: €19,999,812**

**Pre-2004**

42. Soft Constraints for Interactive Tradeoff Generation ..... €4,400  
 Enterprise Ireland International Collaboration Programme  
 April 2003 - March 2004

43. Interactive Constraint Acquisition ..... €4,600  
 Royal Irish Academy Ulysses Visits Scheme  
 April 2003 - March 2004
44. Variable Information Document Design ..... €50,000  
 Xerox Corporation USA University Associates Programme  
 October 2002 - September 2005
45. Tradeoff Generation for Interactive Constraint Satisfaction ..... €150,000  
 Enterprise Ireland Basic Research Grant Scheme  
 October 2002 – September 2005
46. Award from Cadcoevolution.com, Cork, Ireland ..... €10,000  
 October 2002 - September 2003
47. Interactive Constraint-Aided Conceptual Design ..... €97,000  
 Enterprise Ireland Research Innovation Fund  
 April 2001 - September 2003
48. Constraint Acquisition ..... €5,700  
 Enterprise Ireland International Collaboration Programme  
 April 2001 - March 2002

### Publications, Invited Talks, & Tutorials

My approximately 300 peer-reviewed international publications: [ [DBLP](#) | [Google Scholar](#) ].

I have published in prestigious journals such as the Journal of the ACM, Journal of Computer & System Sciences, Theoretical Computer Science, ACM Transactions of Algorithms, Artificial Intelligence Journal, the Journal of Artificial Intelligence Research, the Journal of Discrete Applied Mathematics, Discrete Mathematics, Annals of Mathematics and Artificial Intelligence, the Constraints Journal, Annals of Operations Research, the Journal of Computer Security, AI EDAM, and many others. I publish regularly at the topic ranking constraint programming conferences (CP and CPAIOR), and the top artificial intelligence conferences (IJCAI, AAAI, and ECAI). I am a regular invited/keynote speaker at international conferences (e.g. ICTAI 2015, CP 2012, AAAI 2010, ASPL 2008, CSCLP 2006), and I regularly deliver tutorials at international meetings (e.g. IJCAI 2009, AAAI 2010, CP 2009 & 2012).

#### Journals (peer reviewed)

- Classifier-Based Constraint Acquisition. Steve Prestwich, Eugene Freuder, Barry O’Sullivan and David Browne: Annals of Mathematics and Artificial Intelligence, Springer (in press).
- Leprechauns on the Chessboard. Guillaume Escamocher and Barry O’Sullivan: Journal of Discrete Mathematics, Elsevier (in press).
- Quantitatively Measuring Privacy in Interactive Query Settings Within RDBMS Framework. Muhammad Imran Khan, Simon N. Foley, Barry O’Sullivan: Frontiers Big Data 3: 11 (2020).
- Generating Difficult CNF Instances in Unexplored Constrainedness Regions. Guillaume Escamocher, Barry O’Sullivan, Steven David Prestwich: ACM J. Exp. Algorithmics 25: 1-12 (2020).
- Assigning and Scheduling Service Visits in a Mixed Urban/Rural Setting. Mark Antunes, Vincent Armant, Kenneth N. Brown, Daniel A. Desmond, Guillaume Escamocher, Anne-Marie George, Diarmuid Grimes, Mike O’Keeffe, Yiqing Lin, Barry O’Sullivan, Cemalettin Ozturk, Luis Quesada, Mohamed Siala, Helmut Simonis, Nic Wilson: Int. J. Artif. Intell. Tools 29(03n04): 2060007:1-2060007:31 (2020).
- Complexity Study for the Robust Stable Marriage Problem. Begum Genc, Mohamed Siala, Gilles Simonin, and Barry O’Sullivan: Theoretical Computer Science 775: 76–92, (2019).
- Combinatorial search from an energy perspective. Mohamed Siala and Barry O’Sullivan: Information Processing Letters 148: 23–27 (2019).
- Candidate Selection and Instance Ordering for Realtime Algorithm Configuration. Tadhg Fitzgerald, Barry O’Sullivan: Fundam. Inform. 166(2): 141-166 (2019).
- Pushing the Frontier of Minimality. Guillaume Escamocher and Barry O’Sullivan. Theoretical Computer Science, in press, 2018.



10. Semi-online task assignment policies for workload consolidation in cloud computing systems. Vincent Armant, Milan De Cauwer, Kenneth N. Brown, Barry O'Sullivan. *Future Generation Comp. Syst.* 82: 89-103 (2018)
11. A constraint-based parallel local search for the edge-disjoint rooted distance-constrained minimum spanning tree problem. Alejandro Arbelaez, Deepak Mehta, Barry O'Sullivan, Luis Quesada. *Journal of Heuristics* 24(3): 359-394 (2018)
12. Constraint acquisition. Christian Bessiere, Frederic Koriche, Nadjib Lazaar, Barry O'Sullivan. *Artif. Intell.* 244: 315-342 (2017)
13. The ICON Challenge on Algorithm Selection. Lars Kotthoff, Barry Hurley, Barry O'Sullivan. *AI Magazine* 38(2): 91-93 (2017)
14. The Inductive Constraint Programming Loop. Christian Bessiere, Luc De Raedt, Tias Guns, Lars Kotthoff, Mirco Nanni, Siegfried Nijssen, Barry O'Sullivan, Anastasia Paparrizou, Dino Pedreschi, Helmut Simonis. *IEEE Intelligent Systems* 32(5): 44-52 (2017).
15. Multi-language evaluation of exact solvers in graphical model discrete optimization. Barry Hurley, Barry O'Sullivan, David Allouche, George Katsirelos, Thomas Schiex, Matthias Zytnicki, Simon de Givry. *Constraints* 21(3): 413-434 (2016)
16. Increasing task consolidation efficiency by using more accurate resource estimations. Jesus Omana Iglesias, Milan De Cauwer, Deepak Mehta, Barry O'Sullivan, Liam Murphy. *Future Generation Comp. Syst.* 56: 407-420 (2016)
17. Extrapolating from Limited Uncertain Information in Large-Scale Combinatorial Optimization Problems to Obtain Robust Solutions. Laura Climent, Richard J. Wallace, Barry O'Sullivan, Eugene C. Freuder. *International Journal on Artificial Intelligence Tools* 25(1) (2016)
18. A constraint programming approach to the additional relay placement problem in wireless sensor networks. Luis Quesada, Lanny Sitanayah, Kenneth N. Brown, Barry O'Sullivan, Cormac J. Sreenan. *Constraints* 20(4): 433-451 (2015)
19. Computational protein design as an optimization problem. David Allouche, Isabelle Andr, Sophie Barbe, Jessica Davies, Simon de Givry, George Katsirelos, Barry O'Sullivan, Steven David Prestwich, Thomas Schiex, Seydou Traoré. *Artificial Intelligence* 212: 59-79 (2014).
20. A Constraint-Based Dental School Timetabling System. Hadrien Cambazard, Barry O'Sullivan, Helmut Simonis. *AI Magazine* 35(1): 53-63 (2014).
21. Analyzing the impact of electricity price forecasting on energy cost-aware scheduling. Diarmuid Grimes, Georgiana Ifrim, Barry OSullivan, Helmut Simonis. *Sustainable Computing: Informatics & Systems*, 4 (4):276-291 (2014).
22. Sustainable Policy Making: A Strategic Challenge for Artificial Intelligence. Michela Milano, Barry O'Sullivan, Marco Gavanelli. *AI Magazine* 35(3): 22-35 (2014).
23. DISCUS: an end-to-end solution for ubiquitous broadband optical access. Marco Ruffini, Lena Wosinska, Mohand Achouche, Jiajia Chen, N. J. Doran, Farsheed Farjady, J. Montalvo, Peter Ossieur, Barry O'Sullivan, N. Parsons, T. Pfeiffer, Xing-Zhi Qiu, Christian Raack, H. Rohde, M. Schiano, Paul D. Townsend, Roland Wessly, Xin Yin, David B. Payne. *IEEE Communications Magazine* 52(2): 24-56 (2014).
24. Grand challenges for constraint programming. Eugene C. Freuder, Barry O'Sullivan. *Constraints* 19(2): 150-162 (2014).
25. Finding Small Separators in Linear-time via Treewidth Reduction. Daniel Marx, Barry O'Sullivan, and Igor Razgon. *ACM Transactions on Algorithms* 9(4): 30 (2013).
26. A Shortest Path-based Approach to the Multileaf Collimator Sequencing Problem. Hadrien Cambazard, Eoin O'Mahony, Barry O'Sullivan. *Discrete Applied Mathematics* 160(1-2): 81-99 (2012).
27. Local Search and Constraint Programming for the Post Enrolment-based Course Timetabling Problem. Hadrien Cambazard, Emmanuel Hebrard, Barry O'Sullivan and Alexandre Papadopoulos. *Annals of Operations Research*, 194(1): 111-135 (2012).
28. Deployment Strategies for Protected Long-Reach PON. Marco Rufini, Deepak Mehta, Barry O'Sullivan, Luis Quesada, Linda Doyle, David B. Payne. *IEEE/OSA Journal of Optical Communications and Networking*, vol.4, Issue 2, p118 - 129, Jan 2012.
29. Reasoning about conditional constraint specification problems and feature models. Raphael A. Finkel, Barry O'Sullivan. *AI EDAM* 25(2): 163-174 (2011)



30. Domino Portrait Generation: A Fast and Scalable Approach. Hadrien Cambazard, John Horan, Eoin O'Mahony and Barry O'Sullivan. *Annals OR* 184(1): 79-95 (2011).
31. Soft Constraints of Difference and Equality. Emmanuel Hebrard, Dniel Marx, Barry O'Sullivan, Igor Razgon. *Journal of Artificial Intelligence Research (JAIR)* 41: 97-130 (2011)
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198. Finding the Most Satisfiable Maximal Relaxation in Over-Constrained Problems. Alexandre Papadopoulos and Barry O'Sullivan. Proceedings of AICS-2007, August 2007.
199. Automated Constraint Reformulation for Explanation. Hadrien Cambazard and Barry O'Sullivan. Proceedings of AICS-2007, August 2007. Awarded the best paper prize (sponsored by Google).
200. ConfigLab: A Conceptual Design Tool with Corrective Explanations Supported by Sketch-Based Design Reuse. Noel Titus, Barry O'Sullivan and Karthik Ramani. Proceedings of ICED-2007, August 2007.
201. Representative Explanations for Over-Constrained Problems. Barry O'Sullivan, Alexandre Papadopoulos, Boi Faltings, Pearl Pu. Proceedings of AAAI-2007, July 2007, pp 323-328
202. Generating and Solving Logic Puzzles through Constraint Satisfaction. Barry O'Sullivan and John Horan. Proceedings of AAAI-2007 (Intelligent Systems Demonstration), July 2007, pp 1974-1975
203. Generalised Constraint Acquisition. Xuan Ha Vu and Barry O'Sullivan. Proceedings of SARA-2007 (Research Summary), July 2007, pp 411-412
204. A Reformulation-based Approach to Explanation in Constraint Satisfaction. Hadrien Cambazard and Barry O'Sullivan. Proceedings of SARA-2007 (Research Summary), July 2007,pp 395-396
205. Efficient Recognition of Acyclic Clustered Constraint Satisfaction Problems. Igor Razgon and Barry O'Sullivan. Recent Advances in Constraints, LNAI, Springer 2007, pp 154-168
206. Quantified Constraint Satisfaction: From Relaxations to Explanations. Alex Ferguson and Barry O'Sullivan. Proceedings of IJCAI-2007, January 2007.
207. Distance Constraints in Constraint Satisfaction. Emmanuel Hebrard, Barry O'Sullivan, Toby Walsh. Proceedings of IJCAI-2007, January 2007, pp106-111
208. Query-driven Constraint Acquisition. Christian Bessiere, Remi Coletta, Barry O'Sullivan and Mathias Paulin. Proceedings of IJCAI-2007, January 2007,pp 74-79
209. Truthful Risk-Managed Combinatorial Auctions. Alan Holland, Barry O'Sullivan. Proceedings of IJCAI-2007, January 2007,pp 1315-1320
210. Conditional Symmetry for the Soft CSP. Barbara M. Smith, Stefano Bistarelli and Barry O'Sullivan. Proceedings of the International Symmetry Conference, January 2007.

211. Principles of Secure Network Configuration: Towards a Formal Basis for Self-Configuration. Simon N. Foley, William Fitzgerald, Stefano Bistarelli, Barry O'Sullivan, Micheal O Foghlu. Proceedings of 6th IEEE International Workshop on IP Operations and Management October 2006, pp 168-180
212. Relaxations and Explanations for Quantified Constraint Satisfaction Problems. Alex Ferguson, Barry O'Sullivan. Proceedings of CP-2006, Short Paper, September 2006, pp 690-694
213. Failure Analysis in Backtrack Search for Constraint Satisfaction. Tudor Hulubei, Barry O'Sullivan. Proceedings of CP-2006, Short Paper, September 2006, pp 731-735
214. Heavy-tailed Runtime Distributions: Heuristics, Models and Optimal Refutations. Tudor Hulubei, Barry O'Sullivan. Proceedings of CP-2006, Short Paper, September 2006, pp 736-740
215. Guiding Search using Constraint-level Advice. Radoslaw Szymanek, Barry O'Sullivan. Proceedings of ECAI-2006, August 2006, pp 158-162
216. Approximate Compilation for Embedded Model-based Reasoning. Barry O'Sullivan and Gregory M. Provan. Proceedings of AAI-2006, July, 2006
217. Acquiring Constraint Networks using a SAT-based Version Space Algorithm. Christian Bessiere, Remi Coletta, Frederic Koriche and Barry O'Sullivan. Proceedings of AAI-2006 (Nectar Track), July, 2006
218. A SAT-Based Version Space Algorithm for Acquiring Constraint Satisfaction Problems. Christian Bessiere, Remi Coletta, Frederic Koriche and Barry O'Sullivan. Proceedings of ECML-2005, Springer LNCS, October 2005, pp 445-459
219. Search Heuristics and Heavy-Tailed Behaviour. Tudor Hulubei and Barry O'Sullivan. Proceedings of CP-2005, Springer LNCS, October 2005, pp 328-342, One the top five papers (out of 164 submissions) selected for journal publication.
220. Generating Corrective Explanations for Interactive Constraint Satisfaction. Barry O'Callaghan, Barry O'Sullivan and Eugene C. Freuder. Proceedings of CP-2005, Springer LNCS, October 2005, pp 445-459
221. Multilevel Security and Quality of Protection. Simon Foley, Stefano Bistarelli, Barry O'Sullivan, John Herbert and Garret Swart. Proceedings of Quality of Protection, Springer Advances in Information Security Series. September 2005
222. Optimal Refutations for Constraint Satisfaction Problems. Tudor Hulubei and Barry O'Sullivan. Proceedings of IJCAI-2005, July, 2005, pp 163-168
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224. Finding Diverse and Similar Solutions in Constraint Programming. Emmanuel Hebrard, Brahim Hnich, Barry O'Sullivan, Toby Walsh. Proceedings of AAI-2005, July, 2005
225. Weighted Super Solutions for Constraint Programs. Alan Holland and Barry O'Sullivan. Proceedings of AAI-2005, July, 2005, pp 378-383
226. Robust Solutions for Combinatorial Auctions. Alan Holland and Barry O'Sullivan. Proceedings of ACM EC-2005, June, 2005, pp 183-192
227. Building Reactive Characters for Dynamic Gaming Environments. Peter Blackburn and Barry O'Sullivan. Proceedings of IEEE Computational Intelligence in Games, IEEE Press, April 2005.
228. Timid Acquisition of Constraint Satisfaction Problems. Sarah O'Connell, Barry O'Sullivan and Eugene C. Freuder. Proceedings of ACM SAC-2005, March 2005, pp 404-408
229. Super Solutions for Combinatorial Auctions. Alan Holland and Barry O'Sullivan. ERCIM CoLogNet International Workshop, CSCLP 2004, Revised Selected and Invited Papers, LNCS 3419, Springer, pp.187-200, 2005
230. Boosting Constraint Satisfaction using Decision Trees. Barry O'Sullivan, Alex Ferguson and Eugene C. Freuder. Proceedings of IEEE ICTAI-2004, IEEE Press, November 2004, pp 646-651
231. Encoding Partial Constraint Satisfaction in the Semiring-based Framework for Soft Constraints. Stefano Bistarelli, Eugene C. Freuder and Barry O'Sullivan. Proceedings of IEEE ICTAI-2004, IEEE Press, November 2004, pp 240-245, ISSN: 1082-3409
232. Leveraging the Learning Power of Examples in Automated Constraint Acquisition. Christian Bessiere, Remi Coletta, Eugene C. Freuder and Barry O'Sullivan. Proceedings of CP-2004, Springer, LNCS 3258, Toronto, September 2004, Vol 110, pp 151-155, 2004. ISSN: 0922-6389

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234. Reasoning about Secure Interoperation using Soft Constraints. Stefano Bistarelli, Simon Foley and Barry O'Sullivan. Proceedings of FAST-2004 - Formal Aspects of Security and Trust, Kluwer Academic Publishers, Toulouse, August 2004, pp 173-186
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236. Supporting Constraint-Aided Conceptual Design from First Principles in Autodesk Inventor. Alan Holland, Barry O'Callaghan and Barry O'Sullivan. Proceedings of IEA/AIE, Springer, LNCS 3029, Canada, May 2004, pp 905-914
237. Tradeoff Generation using Soft Constraints. Stefano Bistarelli, Jerome Kelleher and Barry O'Sullivan. Recent Advances in Constraints, 2003, Springer, LNAI 3010, 2004.
238. Evaluation-Based Semiring Meta-Constraints. Jerome Kelleher and Barry O'Sullivan. Proceedings of MICAI, Springer, LNCS 2972, Mexico, April 2004, pp 179-189
239. Modelling and Detecting the Cascade Vulnerability Problem using Soft Constraints. Stefano Bistarelli, Simon Foley and Barry O'Sullivan. Proceedings of ACM Symposium on Applied Computing (SAC-2004), ACM Press, Nicosia, Cyprus, March 2004, pp 383-390
240. Symmetry Breaking in Soft CSPs. Stefano Bistarelli, Jerome Kelleher and Barry O'Sullivan. Proceedings of AI-2003, Springer, Cambridge, UK, December 2003.
241. A Theoretical Framework for Tradeoff Generation using Soft Constraints. Stefano Bistarelli and Barry O'Sullivan. Proceedings of AI-2003, Springer, Cambridge, UK, December 2003.
242. Constraint Acquisition as Semi-Automatic Modeling. Remi Coletta, Christian Bessiere, Barry O'Sullivan, Eugene C. Freuder, Sarah O'Connell, Joel Quinqueton. Proceedings of AI-2003, Springer, Cambridge, UK, December 2003, pp 111-124
243. Creating Personalized Documents: An Optimization Approach. Lisa Purvis, Steven Harrington, Barry O'Sullivan, Eugene C. Freuder. Proceedings of the ACM Symposium on Document Engineering, Grenoble, France, November 2003, pp 68-77
244. A Constraint-Aided Conceptual Design Environment for Autodesk Inventor. Alan Holland, Barry O'Callaghan, Barry O'Sullivan. Proceedings of CP-2003, LNCS 2833, Springer, Kinsale, Cork, Ireland, September 2003, pp 422-463
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247. Evaluation-Based Semiring Meta-Constraints. Jerome Kelleher, Barry O'Sullivan. Proceedings of AICS-2003, Poster Paper, Dublin, Ireland.
248. A Study of Query Generation Strategies for Interactive Constraint Acquisition. Sarah O'Connell, Barry O'Sullivan, Eugene C. Freuder. Applications and Science in Soft Computing, Advances in Soft Computing Series, Springer Verlag, 2003, pp 225-232. ISSN: 1615-3871
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251. Barry OCallaghan, Eugene C. Freuder, Barry OSullivan: Useful Explanations. Ninth International Principles and Practice of Constraint Satisfaction CP 2003, LNCS 2833, Springer, 970, 2003. )
252. Sarah OConnell, Barry OSullivan, Eugene C. Freuder: Teacher and Learner Profiles for Constraint Acquisition. Ninth International Principles and Practice of Constraint Satisfaction CP2003, LNCS 2833, Springer, 989,2003

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254. Generating Tradeoffs for Interactive Constraint-Based Configuration. Eugene C. Freuder, Barry O'Sullivan. Seventh International Conference on Principles and Practice of Constraint Programming - CP 2001, pp 590-594, Paphos, Cyprus, November 2001.
255. A New EDA Technology for Enabling Company-Specific Design Advice. Barry O'Sullivan, James Bowen, Alex Ferguson. Proceedings of the User Forum of the Design Automation and Test in Europe Conference Paris, March 2000 pp 197- 201.
256. A New Technology for Enabling Computer-Aided EMC Analysis. Barry O'Sullivan, James Bowen, Alex Ferguson. Workshop on CAD Tools for EMC, Proceedings of EMC York 1999, University of York, UK, July 1999.
257. Knowledge Processing for Timely Decision Making in Design For X. Marcel Tichem, Barry O'Sullivan. Integration of Process Knowledge into Design Support Systems, Enschede, The Netherlands, March 1999, pages 219-228.
258. Supporting the Design of Product Families through Constraint-Based Reasoning. Barry O'Sullivan. Proceedings of the 4th WDK Workshop on Product Structuring, Delft Technical University, The Netherlands, October 1998.
259. Conflict Management and Negotiation for Concurrent Engineering using Pareto Optimality. Barry O'Sullivan. Changing the ways we work: Shaping the ICT-solutions for the Next Century, Advances in Design and Manufacturing Series, Gteborg, Sweden, October 1998, pages 359-368.
260. A Constraint-Based Approach to Supporting Conceptual Design. Barry O'Sullivan, James Bowen. Artificial Intelligence in Design '98, Instituto Superior Tcnico, Lisbon, July 1998, pages 291-308.
261. The Paradox of using Constraints to Support Creativity in Conceptual Design. Barry O'Sullivan. Computer Aided Conceptual Design '98, Lancaster University, May 1998, pages 99-121.
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263. Using Constraint Programming to Simplify the Task of Specifying DFX Guidelines. Marc van Dongen, Barry O'Sullivan, James Bowen, Alex Ferguson and Mike Baggaley. Proceedings of the 4th International Conference on Concurrent Enterprising, University of Nottingham, October 1997, pages 129-138.
264. The Role of Genetic Algorithms in Production Scheduling. Barry O'Sullivan and Huw J. Lewis. Proceedings of the International Conference on Flexible Automation and Integrated Manufacturing, Georgia Institute of Technology, Atlanta, May 1996, pages 790-799.
265. A Genetic Algorithm for Flowshop Scheduling. Barry O'Sullivan and Huw J. Lewis. Proceedings of the 13th Conference of the Irish Manufacturing Committee, University of Limerick, September 1996, pages 195-203.

#### **Workshops (peer reviewed)**

266. Functional Dependencies in MDD-Compiled Product Catalogues. Tarik Hadzic, Barry O'Sullivan. ITWP 2009
267. A Personalisable Internet Telephony Service. David Lesaint, John Ly, Deepak Mehta, Barry O'Sullivan, Luis Quesada and Nic Wilson. ECAI 2008 Systems Demonstration, July 2008.
268. Beyond Valid Domains in Interactive Configuration. Tarik Hadzic and Barry O'Sullivan. Proceedings of the ECAI 2008 Workshop on Configuration, July 2008.
269. On Automata, MDDs and BDDs in Constraint Satisfaction. Tarik Hadzic, Esben Rune Hansen and Barry O'Sullivan. Proceedings of the ECAI 2008 Workshop on Inference Methods based on Graphical Structures of Knowledge, July 2008.
270. Using Global Constraints for Rectangle Packing. Helmut Simonis and Barry O'Sullivan. Proceedings of teh First Workshop on Bin Packing and Placement Constraints, June 2008.
271. Recognizing Free-form Hand-sketched Constraint Network Diagrams by Combining Geometry and Context. Tracy Hammond and Barry O'Sullivan. Proceedings of Eurographics Ireland, December 2007.

272. Generalizing Global Constraint Based on Network Flows. Igor Razgon, Barry O'Sullivan, and Gregory M. Provan. Proceedings of the CP 2006 Workshop on Constraint Modelling and Reformulation, September 2006.
273. A Survey of Explanation Techniques for Configurators. Albert Hagg, Ulrich Junker and Barry O'Sullivan. Proceedings of ECAI-2006 Workshop on Configuration, August 2006
274. Tree-structured Constraint Satisfaction Problems Revisited. Igor Razgon, Barry O'Sullivan, and Gregory Provan. Proceedings of CSCLP 2006, June, 2006
275. Automated Requirements Elicitation for Supply Chain Management. Barry O'Sullivan, Ken Brown, Alex Ferguson, Eugene C. Freuder and Michael Schabel. Proceedings of Workshop on Supply Chain Management and ICT, Groningen, Netherlands, November 2005.
276. A Decision Tree Learning and Constraint Satisfaction Hybrid for Interactive Problem Solving. Barry O'Sullivan, Alex Ferguson and Eugene C. Freuder. Proceedings of IJCAI-2005 Workshop on Configuration, July, 2005
277. Boosting Constraint Satisfaction using Decision Trees. Barry O'Sullivan, Alex Ferguson and Eugene C. Freuder. Proceedings of the CP-2004 Workshop on CSP Techniques with Immediate Application, September 2004.
278. Super Solutions for Combinatorial Auctions. Alan Holland and Barry O'Sullivan. Proceedings of the ECAI-2004 Workshop on Modelling and Solving Problems with Constraints, Valencia, August 2004.
279. Flexible Generalized Vickrey Auctions using Constraint Programming. Alan Holland and Barry O'Sullivan. Proceedings of the ECAI-2004 Workshop on Modelling and Solving Problems with Constraints, Valencia, August 2004, pp 184-200
280. Super Solutions for Combinatorial Auctions. Alan Holland and Barry O'Sullivan. Proceedings of CSCLP 2004: Joint Annual Workshop of ERCIM CoLogNet on Constraint Solving and Constraint Logic Programming, Lausanne, June 2004.
281. Combining Branch&Bound and SBDD to solve Soft CSPs. Stefano Bistarelli and Barry O'Sullivan. Proceedings of CSCLP 2004: Joint Annual Workshop of ERCIM CoLogNet on Constraint Solving and Constraint Logic Programming, Lausanne, June 2004.
282. A Constraint-Based Framework for the Cascade Vulnerability Problem. Stefano Bistarelli, Simon N. Foley and Barry O'Sullivan. Proceedings of COLOPS-2003 Workshop held alongside ICLP-2003, Mumbai, India, December 2003.
283. Symmetry Breaking in Soft CSPs. Stefano Bistarelli, Jerome Kelleher and Barry O'Sullivan. Proceedings of Soft Constraints Workshop, Kinsale, Cork, Ireland, September 2003.
284. Evaluation-Based Semiring Meta-Constraints. Jerome Kelleher and Barry O'Sullivan. Proceedings of Soft Constraints Workshop, Kinsale, Cork, Ireland, September 2003.
285. Semi-Automatic Modeling by Constraint Acquisition. Remi Coletta, Christian Bessiere, Barry O'Sullivan, Eugene C. Freuder, Sarah O'Connell, Joel Quinqueton. Proceedings of the Second International Workshop on Modelling and Reformulating Constraint Satisfaction Problems, Kinsale, Cork, Ireland, September 2003, Vol 2833, pp 812-816, 2003. ISSN: 0302-9743.
286. A Constraint-Aided Conceptual Design Environment for Autodesk Inventor. Alan Holland, Barry O'Callaghan, Barry O'Sullivan. Proceedings of the ERCIM CologNet International Workshop on Constraint Solving and Constraint Logic Programming, Budapest, Hungary, July 2003.
287. Efficient Vickery-Pricing for Grid Service Providers. Alan Holland, Barry O'Sullivan. Proceedings of the ERCIM CologNet International Workshop on Constraint Solving and Constraint Logic Programming, Budapest, Hungary, July 2003.
288. Modelling Tradeoffs Using Soft Constraints. Stefano Bistarelli, Barry O'Sullivan. Proceedings of the ERCIM CologNet International Workshop on Constraint Solving and Constraint Logic Programming, Budapest, Hungary, July 2003.
289. Strategies for Interactive Constraint Acquisition. Sarah O'Connell, Barry O'Sullivan, Eugene C. Freuder. CP-02 Workshop on User-Interaction in Constraint Satisfaction, Eight International Conference on Principles and Practice of Constraint Programming - CP 2002, Ithaca, New York, September, 2002.
290. Constraint-Based Product Structuring for Configuration. Barry O'Sullivan. ECAI-2002 Workshop on Configuration, Fifteenth European Conference on Artificial Intelligence, Lyon, France, July

291. Interactive Constraint Acquisition. Barry O’Sullivan, Eugene C. Freuder, Sarah O’Connell. CP-01 Workshop on User-Interaction in Constraint Satisfaction, Seventh International Conference on Principles and Practice of Constraint Programming - CP 2001, Paphos, Cyprus, December 1st, 2001.
292. Interfacing a Constraint Programming Language with an existing Electronics CAD Package. Marc van Dongen, Barry O’Sullivan, James Bowen, Alex Ferguson. ERCIM COMPULOG Workshop on Constraints, Schloss Hagenberg, Austria, October 1997.

### **Conference Proceedings (Editorship) – informally published**

293. Proceedings of the 1st Workshop on Combining Constraint Solving with Mining and Learning. Remi Coletta, Tias Guns, Barry O’Sullivan, Andrea Passerini, Guido Tack (editors). ECAI Workshop Proceedings, 2012.
294. Proceedings of the 1st Workshop on Artificial Intelligence for Telecommunications & Sensor Networks.. Ken Brown, Barry O’Sullivan, and Cormac Sreenan (editors). ECAI Workshop Proceedings, 2012.
295. Proceedings of the 1st AAI Workshop on Artificial Intelligence for Data Centre Management and Cloud Computing. Barry O’Sullivan, Donagh Buckley, and Burt Kaliski (editors). AAI Press, 2011.
296. Proceedings of the 19th Irish Conference on Artificial Intelligence and Cognitive Science. Derek Bridge, Ken Brown, Barry O’Sullivan and Humphrey Sorensen (editors). University College Cork, August 2008.
297. Proceedings of the AAI Workshop on Configuration. Barry O’Sullivan and Klas Orsvarn (eds.). Workshop Programme of AAI-2007, AAI Technical Report WS07-03, July 2007
298. Proceedings of the First International Workshop on Applications of Constraint Satisfaction and Programming to Computer Security Problems. Giampaolo Bella, Stefano Bistarelli, Simon N. Foley and Barry O’Sullivan (editors). Held alongside CP-2005, October 2005
299. Proceedings of the First International Workshop on Constraints and Design. Laurent Granvilliers and Barry O’Sullivan (editors). Held alongside CP-2005, October 2005
300. Proceedings of the Second International Workshop on User-Interaction in Constraint Satisfaction. Barry O’Sullivan, Eugene C. Freuder (eds.). In association with the Eight International Conference on Principles and Practice of Constraint Programming - CP 2002, Ithaca, New York, September, 2002.
301. Proceedings of the Joint ERCIM CologNet Workshop on Constraint Solving and Constraint Logic Programming. Krzysztof R. Apt, Francois Fages, Eugene Freuder, Barry O’Sullivan, Francesca Rossi and Toby Walsh (eds.). Cork Constraint Computation Centre (4C), University College Cork, Ireland, 19th-21st June 2002.
302. Proceedings of the First International Workshop on User-Interaction in Constraint Satisfaction. Barry O’Sullivan, Eugene C. Freuder (eds.). In association with the Seventh International Conference on Principles and Practice of Constraint Programming - CP 2001, Paphos, Cyprus, December 1st, 2001.
303. Procs of the 10th Irish Conference on Artificial Intelligence & Cognitive Science (AICS’99). Derek Bridge, Ruth Byrne, Barry O’Sullivan, Steven Prestwich and Humphrey Sorensen (eds.). Department of Computer Science, University College Cork, September 1999, ISBN 0-9536826-0-9.

### **Patents and Copyrights**

304. A Constraint-Based System for the Personalisation of Subscriptions to Feature-Based Telecommunication Services invented by David Lesaint (British Telecom, UK), Deepak Mehta, Barry O’Sullivan, Luis Queada and Nic Wilson (UCC). EU Patent application filed in March 2008.
305. Optical Monitor Placement Optimization in Transparent Networks invented by Daniel C. Kilper (Bell Labs, NJ, USA), Barry O’Sullivan and Alex Ferguson (UCC). Subject to US provisional patent application 60/978,186, filed on 8th October 2007.

<b>Tutorials at International Conferences</b>
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1. Advances in Algorithm Selection and Configuration for Constraint Solving and Satisfiability (with Lars Kothoff and Yuri Malitsky)  
International Joint Conference on Artificial Intelligence (IJCAI)  
August 2013

2. Invited Tutorial: Backdoors in Constraint Satisfaction and Satisfiability  
Constraint Programming Conference (CP)  
September 2010
3. An Introduction to CP and Combinatorial Optimisation through Numberjack (with Emmanuel Hebrard and Eoin O'Mahony)  
Association for the Advancement of Artificial Intelligence Conference (AAAI)  
July 2010
4. Computing Explanations in Problem Solving (with Ulrich Junker, IBM)  
International Joint Conference on Artificial Intelligence (IJCAI)  
Pasadena, California, July 2009.  
Details: <http://www.cs.ucc.ie/~osullb/ijcai-tutorial-2009/>
5. Exploiting Fixed-Parameter Tractability in Satisfiability and Constraint Satisfaction (with Igor Razgon)  
Constraint Programming Conference (CP)  
Lisbon, Portugal, September 2009.  
<http://www.cs.ucc.ie/~osullb/cp-tutorial-2009/>
6. "Explanations in Constraint Programming"  
Association for Constraint Programming Summer School  
St. Andrews University, Scotland 30th June - 4th July 2008
7. "Modelling and Solving Two Complex Problems using CP and OR"  
Association for Constraint Programming Summer School  
St. Andrews University, Scotland 30th June - 4th July 2008
8. Tutorial: "Some Classic Papers in Constraint Modeling and Solving"  
Association for Constraint Programming Summer School  
St. Andrews University, Scotland 30th June - 4th July 2008

### Conference and Workshop Organisation

I have had the honour of chairing more than three dozen international peer-reviewed conferences and workshops in my field. The most significant are listed below.

#### Program Chair/Co-Chair

1. European AI Strategic Workshop 2018x, organised on behalf of the European Artificial Intelligence Association with the European Commission.
2. AAAI-CompSust 2015 - Computational Sustainability Track at the 2015 Conference of the Association for the Advancement of Artificial Intelligence.
3. CP 2014 - 20th International Conference on the Principles and Practice of Constraint Programming
4. PAIS 2014 - International Conference on Prestigious Applications of Artificial Intelligence
5. SAC 2014 - Special Track on Constraint Solving and Programming
6. SAC 2013 - Special Track on Constraint Solving and Programming
7. CompSust 2012 - 3rd International Conference on Computational Sustainability
8. WAITS 2012 - ECAI 2012 Workshop on AI for Telecommunications and Sensor Networks
9. SAC 2012 - Special Track on Constraint Solving and Programming
10. CoCoMiLe 2012 - ECAI Workshop on COmbining COnstraint solving with MIning and LEarning
11. Dagstuhl Seminar 11201 - Constraint Programming meets Machine Learning and Data Mining
12. AIDC 2011 - AAAI 2011 Workshop on AI for Data Centre Management and Cloud Computing
13. SAC 2011 - Special Track on Constraint Solving and Programming
14. ERCIM-CologNet 2010 Workshop on Constraint Solving and Logic Programming



15. SAC 2010 - Special Track on Constraint Solving and Programming
16. ERCIM-CologNet 2009 Workshop on Constraint Solving and Logic Programming
17. SAC 2009 - Special Track on Constraint Solving and Programming
18. AICS 2008 Artificial Intelligence and Cognitive Science
19. SAC 2008 - Special Track on Constraint Solving and Programming
20. SAC 2007 - Special Track on Constraint Solving and Programming
21. CP 2006 - Workshop on the Next 10 Years of Constraint Programming
22. CP 2005 Workshop on Constraints and Design
23. CP 2005 Workshop on Applications of Constraint Programming to Computer Security
24. FLAIRS 2005 - Special Track on Constraint Solving and Programming
25. SAC 2005 - Special Track on Constraint Solving and Programming
26. SAC 2006 - Special Track on Constraint Solving and Programming
27. FLAIRS 2004 - Special Track on Constraint Solving and Programming
28. FLAIRS 2003 Special Track on Constraint Solving and Programming
29. CP-2003 Workshop on User-Interaction in Constraint Satisfaction
30. CP-2002 Workshop on User-Interaction in Constraint Satisfaction
31. ERCIM-CologNet 2002 Workshop on Constraint Solving and Logic Programming
32. CP-2001 Workshop on User-Interaction in Constraint Satisfaction
33. AICS-99: 10th Irish Conference on Artificial Intelligence & Cognitive Science

#### **Conference Chair/Co-Chair/Vice Chair**

1. DCC-2018 - International Conference on Design Computing and Cognition
2. DCC-2016 - International Conference on Design Computing and Cognition
3. CP-2015 - International Conference on the Principles and Practice of Constraint Programming
4. ICLP-2015 - International Conference on Logic Programming
5. CP-AI-OR 2014 - International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems
6. DCC-2014 - International Conference on Design Computing and Cognition
7. DCC-2012 - International Conference on Design Computing and Cognition
8. DCC-2010 - International Conference on Design Computing and Cognition
9. DCC-2008 - International Conference on Design Computing and Cognition
10. DCC-2006 - International Conference on Design Computing and Cognition
11. CP-AI-OR 2006 - International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems
12. DCC-2004 - International Conference on Design Computing and Cognition
13. IJCAR-2004 - International Joint Conference on Automated Reasoning

#### **Other Conference Organisational Duties**

I have served as: Chair of Special Tracks at the 2006 FLAIRS Conference; Sponsorship Chair for AAAI-2020, AAAI-2019, AAAI-2018, CP-AI-OR-2007, CP-2007 and CP-2008; Workshop/Tutorial Chair for CP-2004 and CP-2006.

## Programme Committees

I have served on approximately 100 programme committees of international conferences and workshops in my field. Most notable amongst these are my roles as:

1. Area Chair for Constraint Programming for IJCAI 2013, AAI 2012 and ECAI 2012;
2. Senior PC Member for AAI-2020, IJCAI-2019, IJCAI-ECAI-2018, AAI-2014, AAI-2010, IJCAI-2009, and IJCAI-2011;
3. Regular PC Member for CP since 2002, with few exceptions.
4. Regular PC Member of CPAIOR since 2006.
5. PC Member for AAI, ECAI and IJCAI on several occasions.
6. PC Member of ACM Electronic Commerce and ACM Recommender Systems.

## Supervision & Mentoring

Historical (39): Completed PhD Students: 6; Completed MSc Students: 6; Past Research Fellows & Post-docs 27.  
Current (17): PhD Students 9; MSc Students 1; Research Fellows & Post-docs 7.

## Journal Guest Editorships

Guest Editor (with Michela Milano and Martin Sachenbacher), *IEEE Trans. on Computers*. Special Section: Computational Sustainability: Where Computer Science meets Sustainable Development. Volume 63(1), 2014. Guest Editor, *Journal of Artificial Intelligence for Engineering Design, Analysis and Manufacturing*. Special Issue: Constraints and Design. Volume 20, Number 4, November 2006. Guest Editor (with Peter van Beek), *Constraint Journal*. Special Issue of the 11th International Conference on Principles and Practice of Constraint Programming. Volume 11, Issue 2-3, 2006. Guest Editor, *Constraints Journal*. Special Issue on User-Interaction in Constraint Satisfaction. Vol 9(4), pp 123-137, 2004.

## International Professional Assignments

I have acted as an external scientific expert for the following: NASA - National Aeronautics and Space Administration (USA); NSF - National Science Foundation (USA); Academy of Finland (Finland); Volkswagen Foundation (Germany); Research Council of KU Leuven (Belgium); AgreenSkills (France); CNRS - Centre National de la Recherche Scientifique (France); FNSNF - Swiss National Science Foundation (Switzerland); EPSRC - Engineering and Physical Sciences Research Council (UK).

## International Competitions

Finalist 2012 Google-ROADEF/EURO Challenge; Finalist 2010 EDF-ROADEF/EURO Challenge; Winner 2008 International CSP Solver Competition; Winner 2007 International Timetabling Competition (Post-Enrollment).

## Membership of Professional Societies

Royal Irish Academy ([RIA](#)); Association for Constraint Programming ([ACP](#)); Association for the Advancement of Artificial Intelligence ([AAAI](#)); European Artificial Intelligence Association ([EurAI](#)); Association of Computing Machinery ([ACM](#)); Institute of Electrical and Electronic Engineers ([IEEE](#)); [IEEE Computer Society](#); Irish Academy of Engineers ([IAE](#)); and the Irish Computer Society ([ICS](#));

## Referees

Available upon request.

University College Cork  
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