Professor Barry O'Sullivan, PhD(NUI)
FAAAI, FAAIA, FEurAI, FIAE, FICS, MRIA

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Recent Summary Biographical Sketch. Professor Barry O'Sullivan, FAAAI, FAAIA, FEurAI, FIAE, FICS, MRIA, is an award-winning academic working in the fields of artificial intelligence, constraint programming, operations research, AI/data ethics, and public policy. He contributes to global Track II AI diplomacy efforts at the interface of military, defence, intelligence, and AI.

Professor O'Sullivan is a full professor at the School of Computer Science & IT at University College Cork and a member of its Governing Body. He is founding Director of the Insight SFI Research Centre for Data Analytics at UCC and Director of the SFI Centre for Research Training in AI. He is an Adjunct Professor at Monash University.

Professor O'Sullivan is a Fellow and a past President of the European AI Association (EurAI). He is also a Fellow and a member of the Executive Council of the Association for the Advancement of Artificial Intelligence (AAAI). He chairs the Advisory Board of the GRACE project at Europol, and advises the Leuven.ai institute (KULeuven, Belgium) and the Computational Sustainability Network (Cornell University, USA).

In July 2018 Professor O'Sullivan was appointed Vice Chair of the European Commission High-Level Expert Group on AI. In 2019 the HLEG-AI published: Ethics Guidelines for Trustworthy AI (April) and Policy Investment Recommendations for Trustworthy AI (June). In 2019 he became an advisor at the European Commission's Joint Research Centre.

In 2019 Professor O'Sullivan was appointed by Ireland's Minister for Health to the Health Research Consent Declaration Committee. In 2020 he was appointed Chair of the Oversight Board of Health Data Research UK (North). In 2021 he was appointed by the Minister for Health as Chair of the National Research Ethics Committee for Medical Devices. In 2022 he was appointed by the Minister for Trade Promotion, Digital Company Regulation to the Enterprise Digital Advisory Forum.

His awards include: Fellow of the European AI Association (2012), UCC's Leadership Award (2013), ACP Distinguished Service Award (2014), Science Foundation Ireland Researcher of the Year (2016), UCC Researcher of the Year (2017), elected to the Royal Irish Academy (2017), Fellow of the Irish Computer Society (2018), Fellow of the Irish Academy of Engineering (2019), IPEC-EATCS Nerode Prize (2020), Science Foundation Ireland Best International Engagement Award (2021), Fellow of the Asia-Pacific AI Association (2022), Fellow of the Association for the Advancement of AI (2022).

Professor O'Sullivan has been involved in winning over €300m in RD funding.

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1 Personal

1.1 Education

PhD Computer Science (Artificial Intelligence) . . . . **University College Cork (1995–1999)**
Advisor: Professor James A. Bowen

BTech Production Management (First Class) . . . . **University of Limerick (1990–1994)**
Fourth Year Dissertation Advisor: Dr. Huw Lewis

1.2 Employment History

Director, Insight SFI Centre for Data Analytics (UCC) . . . . since 2013

Insight SFI Centre for Data Analytics, University College Cork
(*See Page 2 for details of my leadership and achievement associated with this position*)

Head of School (Computer Science) 2012-2015

School of Computer Science & IT, University College Cork
(*See Page 3 for details of my leadership and achievement associated with this position*)

Full Professor (Chair of Constraint Programming) . . . . since 2010

School of Computer Science & IT, University College Cork

Senior Lecturer 2004–2010

School of Computer Science & IT, University College Cork

College Lecturer 2001–2004

School of Computer Science & IT, University College Cork

Chief Executive Office 1999-2001

Suntas Technologies Limited (Design Automation startup trading internationally)

2 Governance & Leadership Experience

In the following sections I summarise my leadership and governance experience. My leadership style is highly consultative and collaborative; I am deeply committed to arriving at consensus to ensure shared ownership of outcomes. I have significant experience and achievement, for example, through the establishment and delivery of the Insight SFI Centre for Data Analytics, now Ireland's largest research centre, of managing complex change management processes in the context of complex and rigorous governance requirements.

I have significant experience of developing and delivering a shared vision in large complex organisations, with diverse stakeholder groups. For example, in negotiating the ethics guidelines for Trustworthy Artificial Intelligence through the European Commission's High-Level Expert Group on

Artificial Intelligence, the membership of the group comprised business leaders, legal experts, civil society organisations, consumer protection organisations, philosophers, psychologist, and scientists. We successfully arrived at a unique outcome, widely regarded as the world-leading work in the field, without the need for a single vote on issues and to the satisfaction of diametrically opposed participants.

I have worked in leadership positions at institutional, national, and international levels. I have significant experience of working with senior government officials and policy-makers, both at a national level but also in Europe through my work at the European Commission.

I have worked extensively in international diplomatic settings, with the European Commission and through my work with diplomacy organisations in Geneva. In the former setting, I have acted as an ambassador for the European Commission in discussions to establish alignment and partnership with government officials in Japan and also with India. The latter is particularly challenging since my work focuses on conflict avoidance and conflict resolution at an international level, and where I have led groups to achieve agreement, e.g., in relation to limitations on military uses of AI.

2.1 Academic Leadership & Governance: Research & Teaching

Elected Governor, Governing Body, University College Cork **2019–2024**
(Elected by the Professors/Associate Professors of UCC as their representative)

I am an elected member of the 2019-2024 Governing Body from the constituency of Professors/Associate Professors. UCC's Governing Body is chaired by Catherine Day, former Secretary-General of the European Commission (2005-2015). The functions of the Governing Bodies of Irish Universities are set out in the Universities Act 1997 and include financial and legal responsibilities, accountability regarding managerial responsibilities, strategic planning, human resource planning, governance and management, the assurance of quality in all aspects of university business, amongst other duties and responsibilities.

Founding Director, Insight SFI Centre for Data Analytics (UCC) . . . . **since July 2013**
(Appointed by the Vice President for Research and Innovation)

The Insight Centre for Data Analytics is a joint initiative between Dublin City University, National University of Ireland at Galway, University College Cork, and University College Dublin. Insight was established in 2013 by Science Foundation Ireland and Irish industry with funding of €88 million, including industry contribution, and currently has approximately 500 researchers and staff. At the time that represented the single largest non-capital grant ever awarded in the history of the Irish State. The centre was refunded in 2018 (€150m of which €100 million comes from the Irish State and industry. For this refunding round, I brought in the University of Limerick, represented by the MACSI Research Centre in the Department of Mathematics and Statistics. At Insight we combine the skills of leading researchers with cutting-edge technologies from diverse research areas. We work closely with industry partners to develop next-generation data acquisition and analytics solutions for important and diverse application areas.

Establishing Insight was a unique challenge. Five pre-existing centres with very strong international brand recognition agreed to combine under a single national brand. This required the planning and implementation of a complex change-management process to bed down the new national identity. I was also honoured to develop the research strategic plan for the centre which was the basis for the refunding of the centre in 2019 and is repeating significant gains.

As a national centre sitting across almost universities in operation in Ireland in 2013, and all of them in 2019, considerable work was undertaken to design operational structures that unified the processes already in place at each higher-education institution, but in a way that ensured a common approach and seamless integration across the centre. This involved developing new financial reporting, human resource, intellectual property management, and other governance structures to ensure the centre operated cohesively across the system. It was an honour and a source of great pride to deliver the Insight vision.

Founding Director, SFI Centre for Research Training in Artificial Intelligence . . since 2019

The SFI Centre for Research Training in Artificial Intelligence was established in March 2019 with funding of over €14 million from Science Foundation Ireland and an additional €3.3 million from indusry and the academic partners. It is Ireland's national centre for PhD-level training in AI and will train more than 120 PhDs across four cohorts, with an intake of 30 students per annum for the next four years. The centre brings together five of Ireland's seven universities – Dublin City University, National University of Ireland Galway, Trinity College Dublin, University College Cork, and University of Limerick – and a team of almost 60 supervisors across the country.

In developing the concept for this CRT, I delivered the structures to support the governance and cooperation amongst the partner universities to deliver a cohort-based community of PhD students across five Irish universities. The focus on cohort-based PhD education is related to ensuring that the students experience PhD education in a team-based setting.

A major priority for me in establishing the CRT was to ensure gender balance at all levels of the centre. The centre has a perfect 50:50 gender balance at the level of its executive. We have a target of at least 40% of each gender at both student and supervisor levels. We are on-track to achieve this target.

Founding Co-Applicant, Confirm SFI Centre for Smart Manufacturing . . . . since 2018

CONFIRM is a world-leading SFI centre in smart manufacturing hosted by the University of Limerick. Its mission is to transform industry to become leaders in smart manufacturing. The centre creates a community of practice where industry, researchers, and the general public can learn about smart manufacturing and industry 4.0. To date, CONFIRM has secured €45 million in funding with over 100 industry partners engaged.

As a founding co-applicant I supported the centre director, Professor Conor McCarthy, in developing the concept for the centre, writing the proposal and preparing for site visit in advance of the funding decision. Since the establishment of the centre I have continued to play a leadership role on the Executive Management Committee of the centre. We're currently preparing for our bid to refund the centre for a second phase, which involves a new strategic planning process.

Head of School, School of Computer Science & IT (UCC) 2012–2015
(Appointed by the Head of College of Science, Engineering, and Food Science)

The School of Computer Science & IT is one of the largest schools at University College Cork. As Head of School I undertook a number of strategic initiatives to improve student retention, improve quality standards, develop new programmes, increase postgraduate numbers, and research income. I was successful on each of these goals.

Specifically, at the time I assumed the role, progression rates from first to second year were at approximately 60%, with almost 50% of the original intake making it to final graduation. The

evidence showed that recent growth in undergraduate student numbers were a factor. I introduced a programme of significantly increasing taught and research postgraduate numbers to offset a reduction in undergraduate numbers in our main BSc degree programme. The increase in postgraduate taught numbers was achieved through the introduction of a new MSc programme in Data Science & Analytics, which has subsequently become UCC's most successful and in-demand course. The course was co-developed with the Department of Statistics at UCC. It has a current demand of 15 students for every place available. In addition, building on the significantly success of the creation of the Insight SFI Centre for Data Analytics we increased PhD research student numbers dramatically. In an effort to avoid reducing the overall number of undergraduates in the school, we also introduced a new multidisciplinary programme in collaboration with the College of Arts, Celtic and Social Studies in the area of Computing and Psychology. The results of these efforts resolved the retention issue, with more than 90% of undergraduates progressing from first to second year. A surprising consequence was that, despite reducing the number of students in the main BSc course, the corresponding graduating class – that associated with the reduced intake - became the largest that the school had seen in over a decade. Overall undergraduate numbers grew to fit demand, overall student numbers increased dramatically along with the introduction of new programmes and additional research income for PhD students.

As Head of School I also contributed to the bicentenary celebrations of the birth of George Boole, UCC's first professor of mathematics, working closely with President Michael Murphy. The provided an opportunity to attract several international conferences and events that raised the international profile of the school significantly.

Lead Instructor, Elements of Artificial Intelligence (Free MOOC) . . . . since October 2020

I believe strongly in delivering novel approaches to education. The Elements of AI is a series of free online courses created by Reaktor and the University of Helsinki, and led in Ireland by Dr. Derek Bridge (UCC) and I. We want to encourage as broad a group of people as possible to learn what AI is, what can (and can't) be done with AI, and how to start creating AI methods. The courses combine theory with practical exercises and can be completed at your own pace. Over 700,000 students have signed up for the Elements of AI course. The course has spread worldwide, with graduating students from over 170 countries. About 40% of course participants are women, more than double the average for computer science courses. In Ireland our objective is to teach AI through this format to 50,000 members of the general public, of all ages, and with at least 20,000 of these being women.

Member, Executive Council, Association for the Advancement of AI . . . . . since May 2020 (Elected by the global membership of the association)

Founded in 1979, the Association for the Advancement of Artificial Intelligence (AAAI) (formerly the American Association for Artificial Intelligence) is a nonprofit scientific society devoted to advancing the scientific understanding of the mechanisms underlying thought and intelligent behavior and their embodiment in machines. AAAI aims to promote research in, and responsible use of, artificial intelligence. AAAI also aims to increase public understanding of artificial intelligence, improve the teaching and training of AI practitioners, and provide guidance for research planners and funders concerning the importance and potential of current AI developments and future directions.

Member, Advisory Board, Leuven.ai – the KU Leuven Institute for AI . . . since April 2020 (Appointed by the Executive Committee of the Institute)

The Leuven.AI initiative started up in 2018. Its purpose is to bring together the wealth of expertise on AI that exists at KU Leuven, spread over multiple faculties and departments, and provide a single

access point to it. Leuven.AI became recognized as the KU Leuven Institute for Artificial Intelligence in January 2020. The institute involves 15+ AI research topics, 60+ professors, 100s of researchers and 500 master students. The role of the Advisory Board is to support the institute director develop the governance and strategic aspects of the institute. Leuven.ai is one of Europe's top centres of excellence in AI today.

Member, Advisory Board, Computational Sustainability Network (USA) since August 2018 (Appointed by the Executive Committee of CompSustNet)

CompSustNet is a research network sponsored by the National Science Foundation through an Expeditions in Computing award. Thirteen U.S. academic institutions led by Cornell University, along with many national and international collaborators, are exploring new research directions in computational sustainability. Interdisciplinary, multi-investigator research teams are focusing on cross-cutting computational topics such as optimization, dynamical models, big data, machine learning, and citizen science. These methods are being applied to sustainability challenges including conservation, poverty mitigation and renewable energy. CompSustNet builds on the work of the Institute for Computational Sustainability (ICS), which started the field through one of the first NSF Expeditions awards in 2008. The virtual research lab includes educational, community building, and outreach activities to ensure that computational sustainability becomes a self-sustaining discipline.

President, European Artificial Intelligence Association 2018-2020
Deputy President 2016-2018
Board Member 2014-2016
2018-2020
(Elected by the National AI Associations of Europe and Israel)

The European Artificial Intelligence Association (EurAI), formerly the European Coordinating Committee for Artificial Intelligence (ECCAI), was established in July 1982 as a representative body for the European Artificial Intelligence community. Its aim is to promote the study, research and application of Artificial Intelligence in Europe. I was elected to the board in 2014 by the national AI associations, and subsequently as Deputy President in 2016. From 2018-2020 I served as President of the association.

During my tenure as President the association significantly improved its finances following a series of extremely profitable conferences and events. A major legacy was the development of a close partnership between the European Commission and EurAI, which I led and developed. EurAI has since worked closely with the Commission on a variety of strategic initiatives that have helped shape European policy in the area.

President, International Association for Constraint Programming 2007-2012
(Elected by the membership of the association)

The Association for Constraint Programming aims at promoting constraint programming in every aspect of the scientific world, by encouraging its theoretical and practical developments, its teachning in the academic institutions, its adoption in the industrial world, and its use in the the application fields.

At the time I was elected President, the association was going through a very challenging period. The membership were deeply concerned about the governance of the association and were beginning to abandon it. Working closely with my colleagues on the Executive Committee, I implemented a fundamental restructuring of the association, introducing a new constitution and bylaws, which were unanimously accepted at a General Assembly of the association. Since then the ACP has grown

from strength to strength. Amongst its assets is the annual Principles and Practice of Constraint Programming conference series. This series was ranked as an A* conference by the end of my term as President, a position it has kept ever since.

Chair, Artificial Intelligence Association of Ireland **2007–2016**
(Elected by the membership of the association)

The Artificial Intelligence Association of Ireland (AIAI) is a representative association for the Artificial Intelligence community in Ireland. AIAI promotes research, application, and understanding of Artificial Intelligence and has membership from academia and industry covering the whole island, encompassing areas such as general AI, machine learning, and data mining. AIAI is a member society of The European Association for Artificial Intelligence (EurAI) and its members enjoy the benefits of membership of that parent society. AIAI hosts the Irish Conference on Artificial Intelligence and Cognitive Science (AICS), which has been running almost annually in locations across Ireland since 1988. Membership of the AIAI is free and is open to all students, academics, and professionals interested in the field. AIAI maintains a mailing list covering news, jobs, and other announcements relevant to its membership.

At the time I was elected Chair, the association was in a dire financial situation. I put in place a strategic plan, mostly focused on conference events and partnerships with industry for sponsorship. When my term ended in 2016 the association was in the strongest financial state of its almost 30 year history.

2.2   International Leadership

Senior Technology Advisor at INHR . . . . **since October 2022**
(Geneva, Brussels, Washington DC, New York)

INHR is a U.S.-registered 501(c)(3) non-profit dedicated to improving access to the United Nations and enhancing the effectiveness of small and mid-sized states and NGOs. We offer strategic advice, training, research, and capacity-building to maximize the impact of your interaction with UN agencies in Geneva and New York and bilateral presence in Brussels and Washington. We are training experts - supporting diplomatic skills for governments and advising on effective use of Artificial Intelligence in the military.

Our team of diplomats, lawyers and policy experts provide information and programs that help to make international standards more meaningful by showing how they are implemented in practice. We value improvement of international standards and work to show the meaning of these standards beyond the walls of the United Nations. Our field programs include work with partners in Libya, Myanmar, Afghanistan and China. Another example is our recent study on COVID-19 and human rights. This work also leads us to help implement programs on human rights and development in areas such as atrocity prevention, health and human rights, and humanitarian affairs.

NGOs, business and trade groups, and civil society organizations use our representation services to advocate effectively before UN bodies on human rights, health and other issues. We have helped companies understand health implications of UN resolutions, shown lawyers how to advocate for accountability, and helped NGOs fund environmentally sustainable supply chains. Our training programs include advocacy, public speaking, donor relations, and specialized training for individual UN agencies, funds and programs. We also offer new training in Responsible AI in the military and risk mitigation. As part of our commitment to a level playing field, we work with civil society organiza-

tions from all countries but only represent delegations from small and medium-sized countries.

Chair, Advisory Board, GRACE Project at Europol .... **since June 2020**
(Appointed by the European Cybercrime Centre at Europol)

The sexual exploitation and abuse of children, the production of online child sexual exploitation and abuse material (CSEM) and subsequent distribution of this material via the internet is a shocking crime. Referrals from Online Service Providers (OSPs) are crucial to fighting CSE. Growth in the number of referrals of CSEM to law enforcement agencies (LEAs) is driven both by increased availability and distribution of online CSEM and improved detection and reporting processes. The extent of referrals is affecting LEAs' capacity to respond promptly, leading to an inability to prevent harm to infants and children, rescue those in immediate danger, and investigate and prosecute perpetrators. Recent improvements to the referral process have improved LEAs capabilities. However, the sheer volume of data obtained in CSE cases stretches human resources, the limits of manual analysis beyond most LEAs reach. Given there has been a 4,000% increase in referrals since 2014, a new approach to managing, processing and analysing this content is necessary. GRACE applies proven techniques in machine learning to the referral and analysis process while embracing the technical, ethical and legal challenges unique to fighting CSE. GRACE leverages resources already in place at Europol and the nine MS LEAs within the consortium. The goal for GRACE is to attempt to provide results early, frequently and flexibly, prioritising easy wins in the research plan (e.g., deduplication). Unique to GRACE is the development and application of a Federated Learning approach to the challenge of optimising analysis and information flow in a privacy-aware and security-sensitive manner. GRACE will enable cooperation between LEAs in improving their capabilities while harnessing their experiential knowledge. The results of GRACE will be available to Europol and the Member State LEAs for unrestricted use in their operations, helping to ensure their future technological autonomy.

Working with law enforcement agencies in each European Member State, my role is to ensure that the strictest governance standards apply and are followed across GRACE. This one of the most challenging contexts in which one can operate, given the complexity of the domain and the legal constraints and operational risks.

Chair, Oversight Board Health Data Research UK North .... **since May 2020**
(Appointed by the Executive Pro Vice Chancellor of the Faculty of Health and Life Sciences at the University of Liverpool)

The Better Care North Partnership (HDR UK North) initiative, led by the University of Liverpool, brings together world-class universities, digitally-enabled NHS institutions and academic health science systems. It serves over 16 million people in the North where the rates of poverty, morbidity, premature mortality and poorer clinical outcomes are higher than in other regions.

The Partnership will initially focus on three projects towards better care for elderly people living with frailty. Each project will employ extensive, available data and advanced analytical techniques to gain actionable insights for optimising delivery of care.

The HDR UK North partnership comprises 6 Universities in the North (Lancaster, Leeds, Liverpool, Manchester, Newcastle, Sheffield), a large number of digitally enabled NHS Trusts (including those in Bradford, Durham and Darlington, Leeds, Liverpool, Newcastle, Salford, Sheffield and Wirral), and 4 Academic Health Science Networks (AHSNs). The Northern Health Science Alliance is also a partner. This partnership brings together unique data assets and infrastructure within our Universities and NHS Trusts, and world-leading expertise in clinical care and research.

Expert Advisor, European Commission Joint Research Centre . . . . . . **since November 2019**
(Appointed by the Director-General of the Joint Research Centre

As part of its Digital Single Market Strategy, in April 2018, the European Commission put forward a European approach to Artificial Intelligence in its communication "Artificial Intelligence for Europe", (COM (2018) 237. The Coordinated Plan foresaw that *"in the course of next year, Member States and the Commission will also agree on common indicators to monitor AI uptake and development in the Union and the success rate of the strategies in place, with the support of the AI Watch developed by the European Commission. To assess impacts, in 2019 Member States and the Commission will identify relevant investment parameters and comparable benchmarks for uptake so as to achieve common targets. Progress will be monitored annually."* AI Watch monitors and assess European AI landscapes from driving forces to technology developments, from research to market, from data ecosystems to applications. AI Watch monitors the implementation of the Coordinated Plan including strategies and investment. From these in-depth analyses, we will be able to understand better Europe's areas of strength and areas where investment is needed to boost AI in in Europe. AI has a wide range of potential economic and social implications including new forms of economy and governance. AI Watch provides an independent assessment of the impacts and benefits of AI on growth, jobs, education, and society.

I am the external advisor to the AI Watch initiative and provide guidance on strategy in relation to the project, as well as working with the responsible unit at the JRC to put in place the structures and processes for gathering and validating inputs from the Member States. We release a series of documents for the European Commission each quarter which support policy-makers make decisions on funding policy for research, innovation, and the promotion of the uptake of AI in Europe.

Vice Chair, European Commission's High-Level Expert Group on AI **2018-2020**
(Appointed by the Director General, DG-Connect, European Commission)

The High-Level Expert Group on Artificial Intelligence (AI HLG) had a mandate from June 2018 to June 2020. It supported the implementation of the European strategy on AI. This included the elaboration of recommendations on future AI-related policy developments and on ethical, legal and societal issues related to AI, including socio-economic challenges, in a European context. Moreover, the AI HLG served as the steering group for the European AI Alliance's work, interacting with other initiatives, helping to stimulate a multi-stakeholder dialogue, support the gathering of participants' views and reflecting them in its analysis and reports.

In 2019 the HLEG-AI published: Ethics Guidelines for Trustworthy AI (April) and Policy & Investment Recommendations for Trustworthy AI (June). This work has influenced official EU policy, in particular, the development of the new regulatory approach to AI which has been proposed by the European Commission and is currently with the European Parliament for consideration.

2.3 National Leadership

Chair, National Research Ethics Committee for Medical Devices . . . . **from March 2021**
(Appointed by the Minister for Health)

The National Office for Research Ethics Committees is responsible for establishing national RECs (NRECs) in specific areas of health research as requested by the Minister of Health. These NRECs are tasked with delivering 'single national ethics opinions' which help streamline the system of research ethics in Ireland – strengthening the national research infrastructure to protect patients and the

public, while creating a more conducive environment for clinical trials and other regulated health research areas. Working in partnership with local RECs and other regulators of health research, the National Office is developing a roadmap for the transition to this national system of research ethics review. The NREC for Medical Devices (NREC-MD) specifically delivers on Ireland's responsibilities as specified in the European Medical Devices Regulation which came into effect in May 2021.

As inaugural chair of the National Research Ethics Committee for Medical Devices I have been responsible for the standing up, orientation, and training of the committee members, as well as the implementation of the structures and processes to deliver on our statutory and legal obligations. The Medical Devices Regulation is a complex piece of European Legislation with very strict timelines for committee decisions. The committee's business is subject to a new Statutory Instrument setting out a strict legal framework and set of timelines for the operation of the NREC-MD, as well as requirements related to transparency and appeal. I have succeeded in developing the working methods and structures of the committee in line with our obligations and created a highly collaborative culture amongst a very diverse group of members.

Chair, EGFSN Steering Committee on Artificial Intelligence Skills ......from March 2021
(Appointed by the Department of Enterprise, Trade, & Employment)

The Expert Group on Future Skills Needs (EGFSN) advises the Irish Government, including SO-LAS, Ireland's Further Education and Training Authority, on skills needs and labour market issues that impact on enterprise and employment growth. EGFSN reports combine research, analysis and horizon-scanning in relation to emerging skills requirements at thematic and sectoral levels. The AI Skills Steering Group focuses on skills-related matters in the context of artificial intelligence. The committee, comprising of a diverse multi-stakeholder group of representatives from industry, state bodies, the education sector, and academia, will report to Government in the Autumn of 2021.

Member State Representative for Ireland, UNESCO Intergovernmental Special Committee on the Ethics of AI ....from April 2021
(Appointed by the Department of Foreign Affairs)

I serve as a Member State Representative (Ireland) at the Intergovernmental Special Committee on the Ethics of Artificial Intelligence, nominated by the Irish Government's Department of Foreign Affairs. The Intergovernmental special committee meeting of technical and legal experts will be convened in April and June 2021 to examine the draft text of the Recommendation on the Ethics of Artificial Intelligence (AI). The negotiated and approved text will be submitted to Member States for the adoption by the General Conference of UNESCO at its 41st session. If adopted, the Recommendation will be the first global normative instrument in this critically important field.

As one of two member state representatives for Ireland, my role is to work closely with all other representatives of UN member states to achieve a agreed text to present to the UNESCO General Conference later this year. Arising from our June meeting we have successfully agreed on such a text, and one that is sensitive to Ireland's interests.

Member, Health Research Consent Declaration Committee ....from March 2019
(Appointed by the Minister for Health)

Members of the Health Research Consent Declaration Committee (HRCDC) are appointed and report to the Minister for Health. The HRCDC was established as part of the Health Research Regulations made under the Data Protection Act 2018. The purpose of those Regulations is to support health research and promote necessary and desirable public confidence in such research. The Regulations make explicit consent the default position for processing personal data for health research. In other words, a health researcher planning to use an individual's information for health research must obtain the consent of the individual to do so. This is about empowering the patient in relation to his or her medical records. However, it is recognised – as it is in other countries – that sometimes, in limited situations, obtaining consent will not be possible and that the public interest of doing the research significantly outweighs the need for explicit consent. It is in cases like this that HRCDC has a decision making role. The Regulations provide for a statutory consent declaration process. That enables a data controller carrying out health research using personal data to apply for a consent declaration which means that the consent of the individual is not required for the obtaining and use of his or her personal information for the health research concerned. In order that such applications are carefully considered from a range of perspectives, the Health Research Regulations provide for an independent and representative committee to make decisions on those applications – that is the role of the HRCDC. In everything that we do, our objective will be to seek to build transparency, confidence and trust.

2.4   Leadership of Innovation

I have been heavily involved in the development of startup companies as well as supporting the local innovation ecosystem. My lab has been a major creator of intellectual property at UCC. One of its spinout companies was acquired by Cisco Systems (ThinkSmart Limited). Another of its spinouts has been extremely successfull: Keelvar is currently valued at €100 million. We continue to create companies, most recently Stimul.ai, a health-tech company that develops AI tools to minimise hospital waiting-lists.

Expert-in-Residence, SOSV Startup Accelerators (US, Europe, and Asia) **2017-2018**

SOSV is a venture capital and investment management firm that provides seed, venture and growth stage funding to startup companies in the technology sector. SOSV has over $300m under management, and has funded over 500 startups. It currently funds over 150 startups per year, and its net IRR over the last 20 years puts SOSV in the top 5% of all venture funds worldwide. The company's focus is on accelerating startups via their market specific seed accelerator programs located in Europe, Asia and the USA. SOSV is headquartered in Princeton, New Jersey, with back office operations based in Cork, Ireland, and flagship offices in San Francisco, Shenzhen, Shanghai and New York.

My involvement in SOSV was two-fold. First, I supported the firm in indentifying companies to support across its diverse focus areas, with a special focus on companies building on artificial intelligence and analytics competence. Second, I acted as a mentor to every company exploiting AI or data analytics. Through this experience I gathered unique experience in the process of company formation in domains as diverse as food/agriculture, advanced technology (hardware and software), smart cities, mobile/internet, amongst many others, and in very different environments and markets.

Board Member, IT@Cork, European Tech Cluster **2014-2018**
(Appointed by the President of UCC)

it@cork, European Tech Cluster is a leading not-for-profit independent business organisation, representing the interests of the IT industry in Ireland. It is a unique blend of indigenous and international IT professionals, executives, multinationals, government leaders, public sector, academia, entrepreneurs, investors and the legal and financial professional services community joining together to drive thought leadership, collaboration and global strategic alliances. It currently represents over 300 member companies with over 30,000 employees.

3   Academic Achievement and Reputation

3.1   Honours & Awards

- Elected Fellow of the Associated for the Advancement of Artificial Intelligence (FAAAI) 2022

- Elected Fellow of the Asia-Pacific Artificial Intelligence Association (FAAIA) 2022

- Science Foundation Ireland International Engagement Award 2021

- Winner EATCS-IPEC Nerode Prize 2020

- Elected Fellow of the Irish Academy of Engineering (FIAE) 2019

- President, European Artificial Intelligence Association 2018-2020

- 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 .... November 2017

- Elected Member of the Royal Irish Academy (MRIA) .... March 2017
(*Ireland's highest academic honour*)

- Science Foundation Ireland Researcher of the Year .... November 2016

- Speaker, United Nations General Assembly, UN, New York .... September 2016
(*Data Analytics & Sustainable Development*)

- Irish Government representative, EuroFound Seminar Series (FSS) 2016
(*"The impact of digitalisation on work"*)

- Named amongst *"10 experts unlocking the secrets of big data in the information ageâ'*, and
in *"Ireland's Sci-Tech 100: A galaxy of science and technology stars"* by Silicon Republic 2015

- Speaker, United Nations World Statistics Day, UN, New York .... October 2015
(*Data Analytics & Sustainable Development*)

- Founding Book Series Editor (with Prof.M.Wooldridge, Oxford) 2015
"Artificial Intelligence: Foundations, Theory, and Algorithms" (Springer)

- 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 Pro-
gramming (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 Applica-
tions of AI 2014

- Elected to the six member Board of the European Coordinating Committee for Artificial In-
telligence (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

- Scottish Informatics & Computer Science Alliance Distinguished Visiting Fellow 2012
  – Visiting at St. Andrews University, Edinburgh University, University of Glasgow, and Dundee University.

- Elected Fellow of the European Artificial Intelligence Association (FEurAI) 2012
  – **Citation:** *"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 Senior Member of the Association for the Advancement of Artificial Intelligence 2012
  – He was first Irish person to receive this recognition, and only the second European.

- First Irish scientist to give an Invited Talk at AAAI 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

- Science Foundation Ireland (SFI) Principal Investigator .... since 2006

3.2 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.

Overhead is not included, therefore, I state the institutional overhead amount to UCC separately.

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

Total funding portion for which I am/was responsible: .... approx. €50 million

Institutional Overhead to UCC: .... approx. €15 million

2019–2022

1. Europe's AI-on-demand Platform (AI4Europe) €980,000
   Coordinator, Horizon Europe **Total Award: €9m**

2. 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

3. 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)

4. 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)

5. 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)

6. 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

7. 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)

8. 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**

9. 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 Infrastructuras (ES),
ATOS Spain SA (ES), Technical University of Eindhoven (NL);
Total Award: €3,295,835

2010-2012

10. 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 Hoegskolan (SE)
November 2012 – October 2015; **Total Award: €8,096,604**

11. 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 FerroviÂria Nacional (PT),
Ansaldo (IT), Technische Universitaet Braunschweig (DE), COMSA SA (ES),
EVOLEO Technologies (PT), Nuevas Estratégias de Mantenimiento (ES),
MERMEC (IT), SKF Industrie SPA (IT), Instituto Superior TÂcnico (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**

12. 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**

13. Inductive Constraint Programming (ICON) €493,500
European Union FP7-ICT-2011 FET Open (Scored 15/15 in review)
Other Partners: KU Leuven, Univerity of Pisa, LIRMM Montpellier
January 2012 – December 2014; **Total Award: €1,818,012**

14. 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), UniversitÂ di Ferrara (Italy),
The University of Surrey (UK)
October 2011 – September 2014; **Total Award: €2,559,162**

15. UTRC Collaborative Research (Access Control) €121,211
UTRC Ireland; July 2011 – December 2012

16. Constraint-Based Cloud Resource Mobility €105,875
EMC Ireland; July 2011 – June 2012

17. Centre for Telecommunications Value-Chain Research II €810,243
Science Foundation Ireland; (Funded Investigator)
June 2011 – May 2016; **Total Award: €15,022,735**

18. New Paradigms in Constraint Programming: Applications in Data Centres €1,058,356
Science Foundation Ireland; April 2011 – March 2015

19. Timetabling for the Health Services Executive €145,623
Science Foundation Ireland; January 2011 – June 2012

20. Network Optimisation for Dynamic Transparent Optical Networks €79,280
IRCSET and Bell Labs Ireland; February 2011 – January 2013

21. Study the Convergence and Co-existence of Energy information Networks €25,000
Enterprise Ireland; February 2011 – April 2011

22. Optimisation of Commercial Buildings €6,905
Enterprise Ireland; February 2011 – April 2011

23. Home-Area Network Energy Management System €7,577
Enterprise Ireland; February 2011 – April 2011

24. Guided Selling €145,000
Unum Ireland; January 2011 – April 2012

2007-2009

25. 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**

26. Learning to Detect and Exploit Structure in Real-world Problems €72,009
IRCSET PhD Fellowship (Mentor); October 2008 – September 2011

27. Approximate Compilation of Flexible Constraints €2,500
Royal Irish Academy Ulysess Award
Collaborator: Dr. Helene Fargier, IRIT, Toulouse, France
March 2008 – March 2010

28. High Performance Constraint-based Placement and Routing for EDA €4,680
Science Foundation Ireland UREKA Award
June 2008 – August 2008

29. Algorithmic Decision Theory..€5,000
European Science Foundation COST Action IC0602 (Irish National Rep.)
July 2007 – June 2010

30. Personalisation & Context-Aware Telecoms €188,595
IRCSET Enterprise Partnership
Collaborator: Dr. David Lesaint, British Telecom
March 2007 – March 2010

31. Constraint Programming for Telecoms Personalisation €188,595
    IRCSET Enterprise Partnership
    Collaborator: Dr. David Lesaint, British Telecom
    January 2007 – January 2010

32. Robust & Expressive Combinatorial Auctions for Procurement €443,413
    Enterprise Ireland Technology Development Grant
    January 2007 – December 2009

33. Visual Techniques for the Analysis of Constraint Programming Models €96,300
    IRCSET Post-doc Fellowship (Mentor)
    January 2007 – January 2009

34. High Performance Computer Cluster €120,000
    Science Foundation Ireland Equipment Award 2007

35. 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

36. 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**

37. A Taxonomy of Global Constraints €96,300
    IRCSET Post-doc Fellowship (Mentor)
    October 2006 – September 2008

38. Global Constraints for Nogood Propagation €2,500
    Enterprise Ireland Ulysses Programme
    Apirl 2006 – March 2007

39. Similarity and Diversity in Constraint Programming...............................€2,500
    Enterprise Ireland International Collaboration Programme
    April 2005 – March 2006

40. Automated Constraint Acquisition €110,000
    IRCSET/CNRS Fellowship
    April 2005 – March 2007

41. Risk Management for Combinatorial Auctions €83,400
    Enterprise Ireland Proof Of Concept Programme
    October 2005 -Ã September 2006

42. 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

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

44. Interactive Constraint Acquisition €4,600
    Royal Irish Academy Ulysses Visits Scheme
    April 2003 Ã- March 2004

45. Variable Information Document Design €50,000
    Xerox Corporation USA University Associates Programme
    October 2002 -Ã September 2005

46. Tradeoff Generation for Interactive Constraint Satisfaction €150,000
    Enterprise Ireland Basic Research Grant Scheme
    October 2002 – September 2005

47. Award from Cadcoevolution.com, Cork, Ireland €10,000
    October 2002 -Ã September 2003

48. Interactive Constraint-Aided Conceptual Design €97,000
    Enterprise Ireland Research Innovation Fund
    April 2001 -Ã September 2003

49. Constraint Acquisition €5,700
    Enterprise Ireland International Collaboration Programme
    April 2001 -Ã March 2002

3.3 Publications & Patents

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)

1. Classifier-Based Constraint Acquisition. Steve Prestwich, Eugene Freuder, Barry O'Sullivan and David Browne: Annals of Mathematics and Artificial Intelligence, 89(7): 655-674 (2021).

2. Leprechauns on the Chessboard. Guillaume Escamocher and Barry O'Sullivan: Journal of Discrete Mathematics, 344(5): 112316 (2021)

3. 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).

4. Generating Difficult CNF Instances in Unexplored Constrainedness Regions. Guillaume Escamocher, Barry O'Sullivan, Steven David Prestwich: ACM J. Exp. Algorithmics 25: 1-12 (2020).

5. 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).

6. 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).

7. Combinatorial search from an energy perspective. Mohamed Siala and Barry O'Sullivan: Information Processing Letters 148: 23–27 (2019).

8. Candidate Selection and Instance Ordering for Realtime Algorithm Configuration. Tadhg Fitzgerald, Barry O'Sullivan: Fundam. Inform. 166(2): 141-166 (2019).

9. 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 André, 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 OÕSullivan, 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 Wessäÿly, 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, DÂniel Marx, Barry O'Sullivan, Igor Razgon. Journal of Artificial Intelligence Research (JAIR) 41: 97-130 (2011)

32. Developing Approaches for Solving a Telecommunications Feature Subscription Problem. David Lesaint, Deepak Mehta, Barry O'Sullivan, Luis Quesada and Nic Wilson. Journal of Artificial Intelligence Research (JAIR), 38: 271-305 (2010).

33. Semiring-based Frameworks for Trust Propagation in Small-World Networks and Coalition Formation Criteria. Stefano Bistarelli, Simon Foley, Barry O'Sullivan and Francesco Santini. Journal of Security and Communication Networks 3(6): 595-610 (2010).

34. Almost 2-SAT is fixed-parameter tractable. Igor Razgon, Barry O'Sullivan. Journal of Computer and System Science. 75(8): 435-450 (2009)

35. A Constraint-Based Approach to Enigma 1225. Hadrien Cambazard, Barry O'Sullivan and Barbara M. Smith. Journal of Computers and Mathematics with Applications, 58(8): 1487-1497 (2009).

36. An FPT Algorithm for Directed Feedback Vertex Set. Jianer Chen, Yang Liu, Songjian Lu, Barry O'Sullivan and Igor Razgon. Journal of the ACM (JACM), Vol 55, 2008

37. Reformulating Table Constraints using Functional Dependencies - An Application to Explanation Generation. Hadrien Cambazard and Barry O'Sullivan. Constraints Journal, 2008, Vol 13, Issue 3, pp 385-406

38. A Unifying Framework for Generalized Constraint Learning. Xuan-Ha Vu and Barry O'Sullivan. International Journal on Artificial Intelligence Tools, 2008,Vol 17, ISS 5, pp 803-833

39. Explanation in Product Configuration. Albert Haag, Ulrich Junker and Barry O'Sullivan. IEEE Intelligent Systems, January/February 2007.

40. The Impact of Search Heuristics on Heavy-Tailed Behaviour. Tudor Hulubei and Barry O'Sullivan. Constraints Journal, Volume 11, Issue 2-3, 2006, pp 159-178

41. A Soft Constraint-based Approach to the Cascade Vulnerability Problem. Stefano Bistarelli, Simon N. Foley and Barry O'Sullivan. Journal of Computer Security, Volume 13, Issue 5, pp. 699-720, 2005.

42. Towards Fast Vickrey-Pricing using Constraint Programming. Alan Holland and Barry O'Sullivan. Artificial Intelligence Review, Volume 21, Issue 3-4, pp 335-352, 2004.

43. Interactive Constraint-Aided Conceptual Design. Barry O'Sullivan. Artificial Intelligence for Engineering Design, Analysis and Manufacturing (AIEDAM), Vol.16, Issue 4, pp.303-328, 2002.

44. The Design Advisor: Capturing Design Practices and RFI/EMI Concerns. Barry O'Sullivan. Board Authority, Vol.2, No.4, pp 24-27, December 2000.

Books

45. TAILOR – Foundations of Trustworthy AI: Integrating Learning, Optimization and Reasoning Workshop 2020 Post-proceedings. Fredrik Heintz, Michela Milano, Barry O'Sullivan (eds.) Lecture Notes in Computer Science 12641, Springer 2021, ISBN 978-3-030-73958-4

46. Data Mining and Constraint Programming - Foundations of a Cross-Disciplinary Approach. Christian Bessiere, Luc De Raedt, Lars Kotthoff, Siegfried Nijssen, Barry O'Sullivan, Dino Pedreschi. Lecture Notes in Computer Science 10101, Springer 2016, ISBN 978-3-319-50136-9.

47. Principles and Practice of Constraint Programming - 20th International Conference, CP 2014, Lyon, France, September 8-12, 2014. Proceedings. Barry O'Sullivan (Ed.).Lecture Notes in Computer Science 8656, Springer 2014, ISBN 978-3-319-10427-0.

48. ECAI 2014 - 21st European Conference on Artificial Intelligence, 18-22 August 2014, Prague, Czech Republic - Including Prestigious Applications of Intelligent Systems (PAIS 2014). Torsten Schaub, Gerhard Friedrich, Barry O'Sullivan (Eds.). Frontiers in Artificial Intelligence and Applications 263, IOS Press 2014, ISBN 978-1-61499-418-3.

49. Recent Advances in Constraints - 14th Annual ERCIM International Workshop on Constraint Solving and Constraint Logic Programming, CSCLP 2009, Barcelona, Spain, June 15-17, 2009, Revised Selected Papers, Javier Larrosa, Barry O'Sullivan, Lecture Notes in Computer Science 6384 Springer 2011

50. Trends in Constraint Programming. Frederic Benhamou, Narendra Jussien and Barry O'Sullivan (eds.). Hermes Science Publications, 2007.

51. Recent Advances in Constraints. Barry O'Sullivan (ed.). Springer Lecture Notes in Artificial Intelligence, Vol.2627, 2003.

52. Constraint-Aided Conceptual Design. Barry O'Sullivan. Professional Engineering Publishing, Suffolk, UK, ISBN: 1-86058-335-0, December 2001.

Book Chapters (peer reviewed)

53. Parallel Constraint-Based Local Search: An Application to Designing Resilient Long-Reach Passive Optical Networks. Alejandro Arbelaez, Deepak Mehta, Barry O'Sullivan, Luis Quesada. Handbook of Parallel Constraint Reasoning 2018: 633-665

54. Introduction to Combinatorial Optimisation in Numberjack. Barry Hurley, Barry O'Sullivan. Data Mining and Constraint Programming 2016: 3-24

55. Advanced Portfolio Techniques. Barry Hurley, Lars Kotthoff, Yuri Malitsky, Deepak Mehta, Barry O'Sullivan. Data Mining and Constraint Programming 2016: 191-225

56. 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. Data Mining and Constraint Programming 2016: 303-309

57. ICON Loop Carpooling Show Case. Mirco Nanni, Lars Kotthoff, Riccardo Guidotti, Barry O'Sullivan, Dino Pedreschi. Data Mining and Constraint Programming 2016: 310-324

58. Barry Hurley, Lars Kotthoff, Barry O'Sullivan, Helmut Simonis: ICON Loop Health Show Case. Data Mining and Constraint Programming 2016: 325-333

59. ICON Loop Energy Show Case. Barry Hurley, Barry O'Sullivan, Helmut Simonis. Data Mining and Constraint Programming 2016. 334-347

60. Case-Based Reasoning for Autonomous Constraint Search. Derek Bridge, Eoin O'Mahony and Barry O'Sullivan. Autonomous Search, accepted.

61. The Next 10 Years of Constraint Programming. Lucas Bordeaux, Barry O'Sullivan and Pascal Van Hentenryck (eds.). Chapter 3, Trends in Constraint Programming, Hermes Science Publications, 2007.

Journal Special Issues Edited

62. Guest Editors' Introduction: Special Section on Computational Sustainability: Where Computer Science meets Sustainable Development. Michela Milano, Barry O'Sullivan, Martin Sachenbacher.IEEE Trans. Computers 63(1): 88-89 (2014).

63. Special Issue: Constraints and Design. Barry O'Sullivan. AIEDAM Journal, Volume 20, Number 4, November 2006, pp 295

64. Introduction to the Special Issue of the 11th International Conference on Principles and Practice of Constraint Programming. Barry O'Sullivan and Peter van Beek. Constraints Journal, Volume 11, Issue 2-3, 2006,pp 83-84

65. Introduction to the Special Issue on User-Interaction in Constratint Satisfaction. Barry O'Sullivan. Constraints Journal, Volume 9, Number 4, pp 123-137 October 2004.

Conference Proceedings (peer reviewed)

66. Ethical Data Curation for AI: An Approach based on Feminist Epistemology and Critical Theories of Race. Susan Leavy, Eugenia Siapera, Barry O'Sullivan: AIES 2021: 695-703

67. The Hybrid Flexible Flowshop with Transportation Times. Eddie Armstrong, Michele Garraffa, Barry O'Sullivan, Helmut Simonis: CP 2021: 16:1-16:18

68. Database Intrusion Detection Systems (DIDs): Insider Threat Detection via Behaviour-Based Anomaly Detection Systems - A Brief Survey of Concepts and Approaches. Muhammad Imran Khan, Simon N. Foley, Barry O'Sullivan: EISA 2021: 178-197

69. Automated SAT Problem Feature Extraction using Convolutional Autoencoders. Marco Dalla, Andrea Visentin, Barry O'Sullivan: ICTAI 2021: 232-239

70. Explanation in Constraint Satisfaction: A Survey. Sharmi Dev Gupta, Begum Genc, Barry O'Sullivan: IJCAI 2021: 4400-4407

71. Privacy Interpretation of Behaviour-based Anomaly Detection Approaches. Muhammad Imran Khan, Simon N. Foley, Barry O'Sullivan: SIN 2021: 1-7

72. A Two-Phase Constraint Programming Model for Examination Timetabling at University College Cork. Begum Genc, Barry O'Sullivan: CP 2020: 724-742

73. Towards Privacy-anomaly Detection: Discovering Correlation between Privacy and Security-anomalies. Muhammad Imran Khan, Simon N. Foley, Barry O'Sullivan: FNC/MobiSPC 2020: 331-339

74. Danuta Sorina Chisca, Michele Lombardi, Michela Milano, Barry O'Sullivan: Logic-Based Benders Decomposition for Super Solutions: An Application to the Kidney Exchange Problem. CP 2019: 108-125

75. A Sampling-Free Anticipatory Algorithm for the Kidney Exchange Problem. Danuta Sorina Chisca, Michele Lombardi, Michela Milano, Barry O'Sullivan: CPAIOR 2019: 146-162

76. An Approach to Robustness in the Stable Roommates Problem and Its Comparison with the Stable Marriage Problem. Begum Genc, Mohamed Siala, Gilles Simonin, Barry O'Sullivan: CPAIOR 2019: 320-336

77. Andrea Visentin, Alessia Nardotto, Barry O'Sullivan: Predicting Judicial Decisions: A Statistically Rigorous Approach and a New Ensemble Classifier. ICTAI 2019: 1820-1824

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270. 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.

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274. Beyond Valid Domains in Interactive Configuration. Tarik Hadzic and Barry O'Sullivan. Proceedings of the ECAI 2008 Workshop on Configuration, July 2008.

275. 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.

276. 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.

277. 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.

278. 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.

279. A Survey of Explanation Techniques for Configurators. Albert Hagg, Ulrich Junker and Barry O'Sullivan. Proceedings of ECAI-2006 Workshop on Configuration, August 2006

280. Tree-structured Constraint Satisfaction Problems Revisited. Igor Razgon, Barry O'Sullivan, and Gregory Provan. Proceedings of CSCLP 2006, June, 2006

281. 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.

282. 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

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284. 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.

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289. Symmetry Breaking in Soft CSPs. Stefano Bistarelli, Jerome Kelleher and Barry O'Sullivan. Proceedings of Soft Constraints Workshop, Kinsale, Cork, Ireland, September 2003.

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294. 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.

295. 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.

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Conference Proceedings (Editorship) – informally published

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300. 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.

301. Proceedings of the 1st AAAI Workshop on Artificial Intelligence for Data Centre Management and Cloud Computing. Barry O'Sullivan, Donagh Buckley, and Burt Kaliski (editors). AAAI Press, 2011.

302. 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.

303. Proceedings of the AAAI Workshop on Configuration. Barry O'Sullivan and Klas Orsvarn (eds.). Workshop Programme of AAAI-2007, AAAI Technical Report WS07-03, July 2007

304. 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

305. Proceedings of the First International Workshop on Constraints and Design. Laurent Granvilliers and Barry O'Sullivan (editors). Held alongside CP-2005, October 2005

306. 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.

307. 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.

308. 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.

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Patents and Copyrights

310. 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.

311. Optical Monitor Placement Optimization in Transparent Networks invented by Daniel C. Kilper (Bell Labs, NJ, USA), Barry O'Sullivan and Alex Fergeson (UCC). Subject to US provisional patent application 60/978,186, filed on 8th October 2007.

Tutorials at International Conferences

312. 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

313. Invited Tutorial: Backdoors in Constraint Satisfaction and Satisfiability
Constraint Programming Conference (CP)
September 2010

314. 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

315. 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/

316. 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/

317. "Explanations in Constraint Programming"
Association for Constraint Programming Summer School
St. Andrews University, Scotland 30th June Ã 4th July 2008

318. "Modelling and Solving Two Complex Problems using CP and OR"
Association for Constraint Programming Summer School
St. Andrews University, Scotland 30th June Ã 4th July 2008

319. Tutorial: "Some Classic Papers in Constraint Modeling and Solving"
Association for Constraint Programming Summer School
St. Andrews University, Scotland 30th June –4th July 2008

3.4   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 2018, 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 Sustainabillity

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 Ã 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, AAAI 2012 and ECAI 2012;

2. Senior PC Member for AAAI-2022, AAAI-2021, AAAI-2020, IJCAI-2019, IJCAI-ECAI-2018, AAAI-2014, AAAI-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 AAAI, ECAI and IJCAI on several occasions.

6. PC Member of ACM Electronic Commerce and ACM Recommender Systems.

3.5   Supervision & Mentoring

Historical (43): Completed PhD Students: 10; Completed MSc Students: 6; Past Research Fellows & Post-docs 27.

Current (17): PhD Students 13; Research Fellows & Post-docs 7.

3.6   Journal Guest Editorships

1. 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.

2. Guest Editor, *Journal of Artificial Intelligence for Engineering Design, Analysis and Manufacturing.* Special Issue: Constraints and Design. Volume 20, Number 4, November 2006.

3. 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.

4. Guest Editor, *Constraints Journal.* Special Issue on User-Interaction in Constraint Satisfaction. Vol 9(4), pp 123-137, 2004.

3.7   Book Series Editorship

Book Series Editor (with Prof.Wooldridge, Oxford) "Artificial Intelligence: Foundations, Theory, & Algorithms" (Springer).

3.8   Journal Editorial Boards

Currently Editorial Board Member: Journal of Artificial Intelligence Research; Applied Informatics (Springer).

Previously Editorial Board Member: Constraints Journal (Springer); Artificial Intelligence Review (Springer).

3.9   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 Politecnica de Catalunya;

- University of Paris;

- Strathclyde University;

- University of Limerick.

I am currently External Examiner at the University of Limerick for the BSc in Technology Management (LM063).

3.10 International Reviewing Assignments

I have acted as an external scientific reviewer/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);

- RAEng – Royal Academy of Engineering (UK).

4 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); and IEEE Computer Society;

- Irish Academy of Engineers (IAE);

- Irish Computer Society (ICS).

5   Referees

Contact details for the following are available upon request.

- Lt. General John N.T. "Jack" Shanahan, Inaugural Director, Joint Artificial Intelligence Center, Office of the Department of Defense Chief Information Officer, the Pentagon, Arlington, Virginia.

- Kenneth M. Ford, Founder and Chief Executive Officer of the Florida Institute for Human & Machine Cognition; Founder and Former Director of NASA's Center of Excellence in Information Technology; Former member of the NASA Advisory Council; Defense Science Board; Advanced Technology Board; and National Security Commission on Artificial Intelligence.

- Vice Admiral Mark Mellett, Former Chief of Staff, Irish Defense Forces.

- Pekka Ala-Pietilä, Former President, Nokia.

- John Herlihy, Former VP for EMEA & LATAM, LinkedIn, and Former VP for EMEA, Google.

- David Parekh, Chief Executive Officer of SRI International, California, USA.

- Professor Linda Doyle, Provost, Trinity College Dublin.

- Professor Jim Browne, President Emeritus, National University of Ireland, Galway.

- Professor Joyce O'Connor, Founding President President Emeritus National College of Ireland.

- Professor Michael A. Trick, Dean (President), Carnegie Mellon University, Qatar.

- Professor Eugene C. Freuder, Founding Director, Cork Constraint Computation Centre (UCC) and recipient of the 2020 IJCAI Research Excellence Award (most prestigious research award in artificial intelligence).

Knockgorm, Midleton
Co. Cork, Ireland
August 2023