General Vision for IEEE CIS

IEEE CIS brings together the most comprehensive set of techniques in artificial intelligence, from evolutionary techniques, through fuzzy systems and neural network-inspired approaches. By bringing together academics and practitioners across this rich blend of approaches, the Computational Intelligence Society plays a vital role in fostering the advancement of computational and artificial intelligence more generally.

Specifically, the society catalyses the joint effort of its members, making 'the whole more than the sum of its parts', accelerating the scientific progress in the area for the benefit of society. In turn, and indeed as a crucial element, the society supports its members, including through:

- Supporting students and early career researchers in the development of their research and careers.
- Conducting outreach to stakeholders with limited access to CI and CI research, from students (incl. at high school level) across the world and international communities facing economic challenges.
- Engaging with stakeholders across academia, industry, NGOs and political decision makers, communicating the potential of CI and lobbying for its fostering and professional and responsible application.
- Organising accessible fora and professional events, in particular in the shape of international conferences, to bring together researchers across CI, fostering mutual exchange and knowledge development.
- Managing the publishing of high quality, peer-reviewed academic works in some of the world leading journals in AI.

The society is in strong shape, albeit it is facing challenges in respect to the rapid growth of AI and a seemingly growing disconnect of CI and AI. I personally believe that, while this is an issue which CIS needs to be actively addressing (e.g. through clear messaging), the society has a bright future in particular if we can focus on how best to support (potential) members for the greater good – of the members, CIS and society at large.

Two of the key, broad challenges we face is a perceived disconnect between the members and the society, both at the level of the governance structures (AdCom, ExCom) and members, as well as the level of local chapters. Going forward, I believe we can address this by proactively developing more mechanisms to engage both existing and potential members to shape the goals and activities of the society. Some of these mechanisms may include the organisation of focus groups at our flagship conferences and the development of closer interaction with the membership base through questionnaires and other activities. Recent years have already seen great progress here, with an extremely successful CI competition in 2019 and a highly popular 'mentoring program' which is being rolled out across CI conferences.

The second aspect which we can focus on is to further improve communication across the society. We have some great mechanisms already, including a CIS newsletter. However, in other areas, in particular in the communication of day-to-day activities and decision making, we can still make progress, offering comparatively easy ways of improving engagement with members. Two concrete examples here include the systematic publication of minutes or even summary notes of governance meetings to communicate the direction of the society, as well as a further improved communication of the actions taken every day by our highly dedicated volunteers. The latter could be supported for example by VPs providing a regular update (e.g. using a blog post) of the activities going on within their remit. So much good work is being done – but we can further improve at communicating it.

Previous Volunteering Experience

Overview

External engagement and specifically outreach beyond my immediate academic research areas (e.g., see Digital Catapult, below) and volunteering both within and beyond the IEEE and specifically CIS is a key part of my academic career. Below, IEEE CIS related service are marked with a *****.

Selected Conference and Event Organisation Service

- ***General Co-Chair**, IEEE International Conference on Fuzzy Systems, Luxembourg, Luxembourg, 2021
- ***IEEE CIS Mentoring Program 2020 Lead Organiser,** World Congress on Computational Intelligence, 2020
- **General Co-Chair of FCTA 2020,** 12th International Conference on Fuzzy Computation Theory and Applications, Budapest, 2020
- ***Special Sessions Chair**, IEEE International Conference on Fuzzy Systems, New Orleans, USA, 2019
- ***IEEE CIS Fuzz-IEEE Mentoring Program 2019 Organiser**, Fuzz-IEEE 2019, New Orleans, USA, 2019
- ***Publications Chair**, IEEE International Conference on Fuzzy Systems, Naples, Italy, 2017
- ***Tutorial Organiser,** IEEE International Conference on Fuzzy Systems, Naples, Italy, 2017
- ***Special Session Organiser,** IEEE International Conference on Fuzzy Systems, Naples, Italy, 2017
- ***Vice-Chair of the IEEE CIS Emerging Technologies Task Force** on Computational Intelligence for Affective Computing, 2014 - 2017.
- ***Chair of the IEEE CIS Emerging Technologies Task Force** on Computational Intelligence for Affective Computing, 2013 - 2014.
- ***Vice-Chair of the IEEE CIS Emerging Technologies Task Force** on Computational Intelligence for Affective Computing, 2012 – 2013.
- **Publication Chair**, UK Workshop on Computational Intelligence 2010, Colchester, UK, September 2010.
- ***Tutorial and Special Session Organiser** at a number of international conferences, including the IEEE CIS World Congresses on Computational Intelligence 2010, 2012, 2014 and 2016 and the IEEE CIS International Conferences on Fuzzy Systems in 2011, 2013, 2015 and 2017.

Publication-Centric Service

- ***Associate Editor** of the IEEE Transactions Artificial Intelligence journal, January 2020 – now.
- ***Associate Editor** of the IEEE Transactions on Fuzzy Systems journal, January 2014 – 2020 (full term).
- ***Program Committee Member at a variety of IEEE conferences** such as: IEEE World Congress on Computational Intelligence; IEEE International Conference on Fuzzy Systems; IEEE Systems Man and Cybernetics.
- ***Reviewer for a variety of IEEE CIS and other international journals** such as: Intl. Journal of Robotics and Automation; IEEE Trans. on Fuzzy Systems; Geomatics, Information Sciences; Natural Hazards and Risk; International Journal for Approximate Reasoning, IEEE Trans. on SMC: Systems, IEEE Trans. on Cybernetics
- **Reviewer for the Netherlands Organisation for Scientific Research**, NWO, 2020.
- **Member of UKRI Future Leaders Fellowships Peer Review College**, 2018 onwards
- **Reviewer (Outer Board Member) for the Irish Research Council**, 2018.

Other Selected Service

- ***IEEE CIS AdCom Member-at-Large**, 2018-2020
- **Consultancy to industry**, including Dstl, NCSC, JP Morgan and Unilever.
- **Lead Organiser for LUCID International Workshop on Uncertainty in Data and Decision Making, UK, July 2017**
- **Associate Fellow** of the UK Higher Education Academy (HEA), November 2013 – now.
- **Director**, UK Digital Economy, Digital Catapult Researcher in Residence Prog., London, UK, 2015 2019
  The Researcher in Residence Programme is designed to bring researchers together with industry stakeholders to foster real-world impact of novel research in and around the digital economy such as computational intelligence advances. The programme has already attracted eight researchers wo have been supported to develop the impact potential of their research with partners, at the Digital Catapult, London, UK
- **Training Programme Manager**, Horizon Doctoral Training Centre, Uni. of Nottingham, UK, 2012 – 2015:
  The Horizon Doctoral Training Centre at the University of Nottingham accepts around twelve new PhD students for interdisciplinary research each year, since 2011. PhD students have highly varied backgrounds, ranging from Computer Science and Engineering, to Biology and History.
- **Organiser and Chair for UK Horizon Workshop on Exploring and Exploiting Data 2015**

Position Statement

Overview and Vision

As a world-wide network of academics and practitioners, the IEEE Computational Intelligence Society (CIS) is a unique platform with two core remits to its mission: A) to support interaction, collaboration and innovation in the area of CIS for and by its members, and B) to communicate, engage with and support stakeholders outside the community, from CIS users such as industry and the population at large, to academia in different disciplines.

As a proud and long term member of IEEE CIS and its AdCom from 2018-2020, the fundamental driver underpinning my desire to join the IEEE CIS ADCOM as a Member-at-Large is to continue serving the society with the vision to foster and strengthen its capacity for outreach and supporting its highly diverse membership. We have made great progress in recent years, including with introducing the student and early career mentoring program at Fuzz-IEEE 2019 which is now expanded to WCCI 2020. It is and has been a privilege to lead some of these efforts, and I am eager to continue to support the society in the best way I can.

In order to continue to fulfil CIS's remit in the best way possible in a rapidly changing global setting, I believe it is essential for the society to renew its effort for outreach, diversification, and internal cohesion, in particular:

- At the multi- and interdisciplinary level across sciences, i.e. engaging systematically with fields beyond the physical sciences and engineering, such as the social sciences; policy and law.
- At the level of the diversity of its members and (potential) contributors. I strongly believe that CIS can produce the best level of innovation by bringing together a diverse set of contributors and members. Here, efforts on supporting traditional axes of diversity, i.e. nationality, geographic origin and gender should be maintained and reinforced, but at the same time, CIS can benefit from strengthening its efforts to: A) supporting diversity in terms of the representation of different age and career levels, and B), expanding on its efforts to support and integrate contributors and members from countries and institutions where financial and political challenges make participation in its activities highly challenging.

My Key Objectives if elected as an AdCom Member

O1. Promote multi- and interdisciplinary interaction through:
- Promoting interdisciplinary tracks at CIS sponsored conferences and events.
- Promoting the invitation of thought leaders from non-core CIS disciplines, government and industry for selected keynotes at premier IEEE conferences.
- Promoting systematic advertising of interdisciplinary CIS activities to further attract interdisciplinary contributions. (e.g., explore third-party funding for a CIS-interdisciplinary annual award).

O2. Promote outward-facing communication of CIS through:
- Promoting an outward-facing view of key CIS activities, such as detailing annually how and why the work by CIS Award winners is relevant to real-world applications and society at large.
- Developing a medium to long term strategy to engage industry to sponsor activities at CIS events such as the World Congress on Computational Intelligence, e.g., with travel awards to support diversity (see O3).

O3. Promote diversity at CIS conferences and events by rejuvenating and widening the support for researchers with little or no access to institutional or governmental funding through:
- Promoting the expansion of travel support scholarships to attend CIS flagship events, incl. through external sponsorship.
- Exploring the potential of hybrid or blended conferences, in particular in a post COVID-19 setting. Such events would be designed to support both the remote and in-person participation with different fees.

O4. Promote engagement and interaction of a diverse (incl.: gender, origin, career level) group of researchers at CIS events to engage with CIS at a structural and organisational level through:
- Promoting direct communication between CIS committees and members at CIS events, for example through systematically hosting engagement events at CIS conferences and local chapters.
- Further developing the mentoring program I introduced at Fuzz-IEEE 2019 and which we are now organising across the CIS areas through running it at WCCI 2020 for example to include a 'journal paper preparation' session.
- Exploring the demand for family-support at IEEE CIS flagship events, incl. family rooms and/or childcare as are common in other disciplines.

O5. Promote interaction between the three main areas of CIS through:
- Introduction of hybrid best paper prizes at flagship events such as WCCI, for regular and student papers (combining at least techniques from two of the three CIS areas)
- Combining CIS prizes with the opportunity for authors to summarise and publicize their work on the CIS web pages, highlighting the relevance of integrating CIS techniques in the case of hybrid prizes.