

## MAIN TOPICS

- **Chapter Report**
- **Interview with the Director of the Centre for Computational Intelligence, De Monfort University**
- **Call for UKRI Chapter Committee involvement**
- **CI Related Events in the UKRI**
- **Chapter Competition - Win a prize**

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## CHAPTER REPORT

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The United Kingdom and Republic of Ireland (UKRI) IEEE Computational Intelligence Society (CIS) chapter endeavours to support the UKRI Computational Intelligence research community in as many ways as possible by collating and making available relevant information and news about computational intelligence research in the UKRI area as well as facilitating knowledge dissemination and interaction among researchers in the region.

Currently the chapter is going through a transition phase which saw the re-launch of the website and a number of initiatives which are underway to support the development of the chapter and its aims to contribute towards the progression of computational intelligence research activities and cohesion in the UK and RI and to the success of the society as a whole. The chapter is relatively large, consisting of 205 members including one life member (LM), 6 fellows (F), 34 senior members (SM), 129 members (M) and 36 graduate student members (GSM). The chapter is spread over a wide geographical area, over two islands Great Britain and Ireland with Northern Ireland,

England, Scotland and Wales being part of the UK in addition to the Rep. of Ireland, resulting in a dispersion of members over five distinct geographical areas.

Over the past two years, efforts have been focused on developing a model to support chapter activities across all regions, with activities in Northern Ireland serving as template for activities in other regions. The chapter recently reported activities and plans in the Society's Computational Intelligence magazine ([online here](#)). This newsletter outlines our progress and experiences to date and our developed strategy which we hope to put into action 2010/2011 to make activities more widespread across the geographical boundaries within the UKRI area, to engage members in all areas and provide a service which can benefit CI researchers across the society, not only in the UKRI.

### **Committee**

Our first focus is on strengthening the chapter committee. The chapter committee is made up as follows:- Damien Coyle (Chair & Treasurer), Intelligent Systems Research Centre, University of Ulster, Northern Ireland; Ke Chen, (Vice Chair), School of Computer Science, University of Manchester, England; Leslie Smith, (Past

Chair and Acting Scotland Representative), Department of Computing Science, University of Stirling, Scotland; Ammar Beletreche, Intelligent Systems Research Centre, University of Ulster, (Northern Ireland Representative); Sean Mcloone, Department of Electronic Engineering, National University of Ireland (Acting Republic of Ireland Representative); Simon Coupland, Centre for Computational Intelligence, De Monfort University, Leicester (England Representative); and Snaider Carrillo (GOLD Representative), Intelligent Systems Research Centre, University of Ulster, Northern Ireland;

We aim to recruit new volunteers to support the role out of planned initiatives in 2011. This year, a major focus has and will be on recruiting chapter officers to undertake the following roles:

**Regional Representatives:** The role of geographical area representatives is to organize regular chapter events in their region within the UKRI (at least twice yearly but hopefully many more) and report on the activities and outcomes of these events. For the e-newsletter, each regional representative will keep abreast of other CI-related events, activities, developments and news in their region. The information is then populated in the chapter newsletter which is distributed to the UKRI chapter members annually.

The following regional representatives have recently joined the committee: Ammar Belatreche (Northern Ireland Representative) and Simon Coupland (England Representative).

**We are currently looking for enthusiastic Rep. of Ireland, Scotland and Wales representatives. Please contact us if you are interested.**

**Industrial Liaison:** Computational Intelligence research has made significant strides in supporting the development of many new technologies.

The UKRI region has a vibrant technology development industry and many other services and process related industries which can benefit significantly from further interaction with computational intelligence based researchers. It is very important that the UKRI chapter supports both industry and academia by encouraging interaction through the facilitation of relevant events and organization of lectures within industry and aimed at those who are conducting CI research in industry.

It is also important that we gain industrial support for the initiatives we organize and develop better communication with industry to find out what new applications can benefit from CI research, identify current challenging problems in industry which may be used to test and validate the latest developments in CI research, keeping researchers abreast of job opportunities for CI researchers and keeping industry informed about exceptional candidates for challenging research positions as well as helping academic-industry collaboration and exploiting funding opportunities. Obviously researchers and research labs already have a good working relationship with industrial partners and many industry-academic collaborations push the boundaries of the state-of-the-art computational intelligence technologies.

The UKRI region can benefit significantly from better awareness of particular projects and industry needs and therefore the industrial liaison within the chapter will have a role in enhancing this interaction and reporting on important CI-related research within industry and/or academia-industry partnerships as well as creating awareness of industry needs among CI researchers. David Elizondo, Centre for Computational Intelligence, De Monfort University, Leicester, has just taken on the role of industrial liaison for the chapter.

**Women Representative:** There are only a handful of women members in the chapter even though the IEEE Women in Engineering (WIE) is the largest international professional organization dedicated to promoting women engineers and scientists. It is therefore a goal of the chapter to increase the number of women members and encourage more participation from women working in the field of computational intelligence.

This year we intend to assign the role of women representatives to one of the chapter's women members in the hope of addressing this goal. It is known that there are many active and successful women CI researchers in the UKRI region and the chapter could benefit significantly from their expertise by either having more women present their work in the lectures/seminars in one of the regional meetings or establishing a small group of women CI researchers to provide their views on what initiatives the chapter and society can develop to support women in CI research and to encourage more of the UKRI women engineers to engage in CI research.

The appointed women representative will play a major important role in addressing this need and contribute towards the gender bias within the chapter membership demographics.

**If you are interested in becoming the chapter's women representative please contact us.**

**GOLD Representative:** GOLD stands for Graduates of the Last Decade and is an IEEE-wide initiative but the IEEE CIS has its own GOLD subcommittee. In the chapter we are seeking active participation from GOLD members within the UKRI to get involved and outline their views on what the IEEE and/or the IEEE CIS chapter can do to help the development and progression of GOLD members.

We are very keen to establish an active group of GOLDS in CI in the UKRI region and to establish a working group aimed at developing and supporting new and innovative initiatives for new graduates and early stage careerists working in academia (perhaps undertaking a Masters or Ph.D. ), in industry or in government. The chapter strongly believes that the ideas of our younger members about how the CIS can support initiatives within the CIS community for graduates and those in the early stages of their career is of critical importance for the society as it progresses into the future.

The IEEE Computational Intelligence Society has a GOLD subcommittee and recently a review was undertaken to decide the true added value of the GOLD subcommittee to younger members of the society. It was agreed that the committee has a role to play in getting young people more involved in the CIS and its activities.

The CIS GOLD subcommittee aims to help GOLDS enhance their participation in the society (perhaps as a full member of the GOLD subcommittee) and allow them to gain valuable experience in committee membership and society and to educate younger members about the structure of the society and various committees which work behind the scenes. This can enhance their profile or be a stepping stone towards further technical committee involvement in the society. GOLD is seen as an incubator mechanism for future Society committee members/Task Force leaders/volunteers and this could be considered a significant benefit of joining the CIS and/or engaging GOLD.

The UKRI chapter is very keen to help the society's GOLD subcommittee in developing initiatives and will continue to actively encourage younger members across the society to get active within the society. The best way to begin doing this is either to get involved in



chapter activities at local level or in the CIS GOLD subcommittee. The chapter strongly believes that the real value of your membership can only be unlocked through active society engagement and interaction with other members.

Recently, Snaider Carrillo, a PhD student at the Intelligent Systems Research Centre, University of Ulster, has agreed to be the first GOLD representative in the UKRI chapter and he will be in touch with all UKRI based GOLDS in the coming months. Please contact Snaider if you want to get involved or have any comments. [Carrillo\\_Lindado-S@email.ulster.ac.uk](mailto:Carrillo_Lindado-S@email.ulster.ac.uk)

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### **COMPUTATIONAL INTELLIGENCE RESEARCH CENTRES AND INTERVIEWS WITH DIRECTORS**

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A number of chapter members have suggested that we compile a list of UKRI based computational intelligence related research centres/laboratories for the website.

We are currently collating information on the various research labs/centres and plan to conduct a series of interviews with directors of research labs in the UKRI region so that they can publicise the main research focus within the lab, how the labs got started and where they see the labs' major focus will be in the future. This would also involve gathering some information on the personal profile of the director and providing an overview of the centre/labs/groups activities' major outcomes (in R&D, tech transfer, links with industry etc).

This would be very beneficial in terms of exposing the CI research in the region and for publicizing the activities of UKRI CI based research centres/groups. The following directors of Computational Intelligence focused researcher centres have agreed to provide

answers to a series of questions relating to the centres and these will be published in the forthcoming newsletter and on the website.

Our first interview has been conducted Prof. Robert John, Centre for Computational Intelligence (CCI), De Montfort University Leicester, England.

<http://www.cci.dmu.ac.uk/>

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### **INTERVIEW WITH THE DIRECTOR OF THE CENTRE FOR COMPUTATIONAL INTELLIGENCE**

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Robert John is currently Professor of Computational Intelligence, Director of the Centre for Computational Intelligence and Head of the Department of Informatics at De Montfort University. He is a Senior Member of IEEE and Fellow of the British Computer Society. Professor John kindly accepted to take a few moments to answer a few questions on his background and to tell us about the Centre for Computational Intelligence and the future CI research.

#### **Director Profile**

**Age:** 54

**Education:**

- B.Sc. (Hons) Mathematics (First Class) – Leicester Polytechnic – 1979
- M.Sc. Statistics – UMIST – 1981
- Ph.D. in Type-2 Fuzzy Systems – De Montfort University – 2000

#### **From Undergrad to Professor - tell us a bit about that?**

After getting my Mathematics degree I had a brief flirtation with being an actuary before doing an MSc in Statistics at UMIST. My first job was working in British Gas Research primarily working on Mixed Integer Linear Programming - this was where I got into AI in 1983 by working

on Expert Systems developing the first expert systems actually deployed by British Gas in anger. I left to work with Systems Designers on their expert system shell – Envisage. A group of us then set up an expert systems company working in London. This didn't pan out and I ended up, by accident almost, back at Leicester as a lecturer in the Department of Mathematics where I carried on my love of AI teaching knowledge based systems and neural networks. In time I moved to the Computer Science Department and embarked on a part PhD in fuzzy logic where I got interested in type-2 fuzzy sets and their role in modelling uncertainty. The CCI was created about 1999 and I was submitted in the 2001 RAE as a member. I took upon the role as Director and we have built it to be one of the largest CI Centres in the UK with 11 academic staff and about 30 students. I was made a professor in 2005.

**What is your current Position and duties?**

I have two management roles. I am the Head of the Department of Informatics which has 35 staff teaching a broad spectrum of computing and containing two large research groups including the CCI. As Director of the CCI I am responsible for developing the work across the Centre with the eye on the usual suspects – publications, funding, PhD students and peer esteem. This is also, obviously, partly with an eye on the looming REF audit. I supervise 5 PhD students as first supervisor and 5 as second. This is the best part of the job. I also spend my time applying for money, writing articles and so on.

**What are your main research interests?**

My main research interest is type-2 fuzzy logic from both a theoretical and applied perspective.

**The Lab/Research Centre**

**What are the core research areas and applications being focused on?**

Fuzzy Logic, Neural Networks and Evolutionary Computing are the core topics with a diverse set of applications ranging from biomedical, time series, robotics through to Computing with Words, data mining and so on. Check the web site out!

<http://www.cci.dmu.ac.uk/>

**How many current members?**

11 academics and circa 30 PhD students

**Any highlights of the last few years (prizes, awards, funded projects, appointments to positions in societies)?**

We are very pleased to have won the BCS Machine Intelligence Competition for the last 2 years. In 2008 we won with Martin Rhodes and Simon Coupland's work on using evolutionary computing to model a free kick in a football game and last year Ben Passow and Mario Gongora won with an intelligent helicopter control using sound. Simon Coupland and myself won the best paper award for IEEE Transactions on Fuzzy Systems in 2007 (Geometric Type-1 and Type-2 Fuzzy Logic Systems, S. Coupland and R. I. John, IEEE Transactions on Fuzzy Systems, 15(1):3 - 15, February 2007) for the first time using a geometric approach in modelling type-2 fuzzy logic systems.

In the last few years we have been awarded significant funding. Just picking three I would highlight a KTP, some venture capital and an iNet award. The KTP (myself and Simon Coupland) is with a company called GoMad who deliver a framework for setting goals and life planning. The project is to deliver an online coach based around this framework. Mario Gongora has been awarded venture capital for his VenueSim project that applies his research in AI to the identification, modelling and simulation of customer behaviour in large Venues, the project VenueSim aims to create a commercial product, to help such venues at

airports and shopping centres, to manage their customers.

David Elizondo and Eric Goodyer have received funding from the EMDA Transport INET initiative to investigate the use of computational intelligence to deliver systems that optimise the use of the transport network and enhance air quality. I have been appointed a Senior Member of IEEE and many of the staff in the group are extremely active in conferences as Chair or organisers in some way. In particular we are very active in IEEE - for example organising a number of sessions at WCCI 2010 and a symposium on type-2 fuzzy logic at SSCI 2011.

**Does your lab focus on blue skies areas or are there a range of practical applications of the research?**

We do some fundamental theoretical work. For example Paco Chiclana is extremely well known for his work on preference modelling using fuzzy logic, David Elizondo for the RDP neural network, myself and Paco for type-2 OWA operators and Simon Coupland for geometric type-2 fuzzy systems. But, as described, we also carry out application work in a variety of fields.

**Is there a focus on developing partnerships with industry?**

We have some good links with industry and have, for example, a TSB project with a consortium using CI in the supply chain.

**UKRI Research and Collaboration**

**Do you have much interaction/collaboration with other UK labs?**

We interact closely with the IMA group at Nottingham and the Computational Intelligence Group at Essex. I jointly organised Fuzz-IEEE 2007 with Bristol (Trevor Martin), Aberystwyth (Qiang Shen) and Essex (Hani Hagrass). This was

held at Imperial College with over 400 delegates. The largest ever Fuzz-IEEE.

**How important do you rate R&D in Computational Intelligence in the UKRI? Do you think there needs to be more focused support for CI research from the government and funding bodies?**

R&D in CI is growing in the UK and I believe we are major players now. For example the community here is well known in IEEE with plenaries at conferences and so on. Funding for CI is hard and we are in competition with other subjects. I think we have to fight our corner and submit strong applications! where we could do more in the use of CI in applications and other technical fields. CI can help so many areas and we should be making proposals with colleagues in other disciplines.

**Do you think it is important to collaborate with local labs in the UK or RI in terms of seeking UKRI funding?**

Yes, and we have done this successfully with Jon Garibaldi at Nottingham.

**Do you think there is enough interaction among CI researchers and labs in the UKRI?**

It is growing but there could be more. I think the UKCI conference (Essex in September this year - <http://csee.essex.ac.uk/ukci2010> ) provide a great opportunity for us all to meet and exchange ideas. It is sponsored by the IEEE CIS.

**There are a range of IEEE society chapters active in the UKRI. Do you think the Computational Intelligence Society UKRI chapter can facilitate better communication among CI focused research labs and in doing so help boost research productivity in the UKRI region?**

Clearly. I am hopeful that the Chapter can thrive under its current leadership!



### The Future

#### **Have you specific plans for personal R&D for the future?**

Yes. I am going to continue working on type-2 fuzzy logic and have some ideas on the juxtaposition between probability and type-2 fuzzy logic. I am also looking at learning of type-2 fuzzy systems with Simon Coupland.

#### **How do you see your lab developing over the coming years?**

I think it's 'more of the same' in many ways. Improving our grant income, publications and peer esteem are central to the strategy. The IEEE is becoming more important for the CCI and I intend for us to do more in the Computational Intelligence Society.

#### **What will be the hot topics in CI research over the next few years?**

Particularly important for me is getting CI into real, useful applications and working across disciplines to achieve this. There are still many areas to develop and, in particular, to combine different CI techniques in the best way.

Many thanks to Professor Robert John, Director of the Centre for Computational Intelligence and Senior Member of IEEE, for taking the time to answer these questions.

**If you would like to comment or to let other members know about your lab being involved in these interviews please get in touch [d.coyle@ieee.org](mailto:d.coyle@ieee.org)**

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### **AWARDS**

We also like to promote the top class research being conducted by UKRI researchers. In recent years, chapter members have been very successful in the Society's awards process having received Outstanding Doctoral

Dissertation awards, Neural Networks pioneers awards and a number of IEEE CIS Transactions best paper awards. This year two UKRI members have received prestigious awards:

Simon Coupland (England Representative) and Bob John, from De Montfort University, Leicester, UK, picked up their award for best paper IEEE transactions on Fuzzy Systems at the WCCI 2010 conference in Barcelona, Spain.

Snaider Carrillo (GOLD Representative), Jim Harkin, Liam McDaid, from University of Ulster, Northern Ireland, UK, and Sandeep Pande and Fearghal Morgan, from the National University of Ireland, Galway, Rep. of Ireland, received the Best Paper Award at the 9<sup>th</sup> International Conference on Evolvable Systems (ICES 2010) in York, England.

Huanhuan Chen, School of Computing, University Of Leeds, is the recipient of the 2011 IEEE CIS Outstanding PhD Dissertation Award for his dissertation titled Diversity and Regularization in Neural Network Ensembles. He was supervised by Prof Xin Yao at the Centre of Excellence for Research in Computational Intelligence and Applications (CERCIA).

It is interesting to note that UKRI researchers have won the IEEE CIS Outstanding PhD Dissertation Award for 3 of the past for years.

Congratulations to these members on these excellent awards.

We know the UKRI regions are very successful in CI research and other awards have been won. Please keep us informed if you know of any successes in the region so that we can keep chapter members abreast of activities.

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### **CI RELATED EVENTS IN THE UKRI**

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### Technical Co-sponsorship by the chapter

The chapter is keen to support local events/conferences workshops through technical co-sponsorship.

### Forthcoming event which are technically co-sponsored by the chapter include:-

[Webinar](#) by UKRI member Prof. Simon M. Lucas School of Computer Science and Electronic Engineering, University of Essex (UK), titled **Playing Games With N-Tuple Systems**, will be hosted by the IEEE Toronto Section on 29th September, 3pm-4.30pm

This is an online webinar, we encourage you to attend. Register [here](#)

[CIWinterSchool2011](#), IEEE-CIS/Surrey Winter School on Computational Intelligence - Theory and Industrial Applications, University of Surrey, Guildford, UK, 3-7 January, 2011.

This should be an excellent winter school to get up to speed on some of the key CI concepts and latest research which is particularly pertinent to industry based researchers. The school will also offer the opportunity to meet and interact with UKRI members and leading CI researchers and potentially establish some good collaboration opportunities

### Recent Technically Co-sponsored events

[ISSC2010](#), 21st Irish Signals and Systems Conference, School of Engineering, University College Cork, Cork Ireland 23 -24 June, 2010.

[CEEC2010](#), 2nd Computer Science and Electronic Engineering Conference, School of Computer Science and Engineering, University of Essex, Colchester, UK 8 -10 September, 2010

[BIC-TA2010](#), 5th International Conference on Bio-Inspired Computing: Theories and

*Applications*, Liverpool Hope University, Liverpool, UK, 8-10 September, 2010.

### Other Events Supported by the Society

[SSCI2011](#), IEEE Symposium Series on Computational Intelligence - SSCI 2011, Paris, France 11-15 April, 2011. (*IEEE Computational Intelligence Society Sponsored Event*)

Please see all symposia, many of which are being organised by UKRI based researchers. This should be a very interesting series of symposia, please provide your support by submitting papers and getting involved in programs committees etc.

[WCCI2010](#), IEEE World Congress on Computational Intelligence, Barcelona, Spain, 18-23 July, 2010 (with several number of special sessions organised by UKRI researchers), was a success. A number of very informative talks by some of the top researchers in computational intelligence were complemented by excellent contributions from attendees.

### Forthcoming UKRI Events

[AI-2010](#), 13th SGAI International Conference on Artificial Intelligence, Cambridge University, Cambridge, UK, 14-16 December, 2010 (interesting workshops and competitions also linked with this event)

Check out the CIS UKRI events page for events: <http://ewh.ieee.org/r8/ukri/cis/events.html>

The chapter also hold meetings and technical talks regularly. These are listed in the events page also. If you desire a chapter meeting in your regions have meeting agenda followed by technical talk please let us know and we can offer some support and publicise it to other members .



### Competitions

[BCS Machine Intelligence Competition](#),  
Wednesday 15th December, 2010 Peterhouse  
College, Cambridge, UK. The BCS Machine  
Intelligence Prize is awarded for a live  
demonstration of 'Progress Towards Machine  
Intelligence'. The competition will be held on  
Wednesday December 15th 2010 at Peterhouse  
College, Cambridge, UK during the annual SGA1  
conference [AI-2010](#).

If you know of or are organising any CI related  
events in the UKRI region, please keep us  
informed so that we can post them on the  
website.

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### SUMMARY

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The chapter aims to encourage UKRI members  
to learn more about the chapter, the society  
and the IEEE, to provide their views on what the  
chapter could or should do for CI research in the  
UKRI region and to seek active participation in  
chapter activities and initiatives. We are always  
keen to hear from chapter members and would  
be very keen to develop the chapter so that all  
CIS members benefit through supporting  
initiatives and activities, facilitating more  
collaboration, interaction and research  
exploitation, as well as attracting new members  
to strengthen the CI research community in the  
UKRI and create more public awareness of the  
exciting topics which exist under the  
computational intelligence umbrella.

Time is difficult to find and an expensive  
commodity in today's society and working  
environment, be it academia, research, or  
industry, but we believe that by investing time  
and effort in the chapter and obtaining guidance  
and feedback from CI researchers, the CIS UKRI  
chapter can be much better, much more useful  
to researchers in the region and can be in the

position to provide meaningful service and good  
resources for UKRI CI researchers in the future.  
We want the UKRI CIS chapter to be the integral  
part of the CI research community in the UKRI.  
Ongoing efforts and plans for the future to  
achieve this are currently being actively  
pursued.

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### CHAPTER COMPETITION - WIN A PRIZE

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We have a number of nice IEEE Computational  
Intelligence Society t-shirts to give away. If you  
want to win one all you have to do is email a  
comment on the newsletter or any item within  
the newsletter which may help us improve it or  
at least let us know that people are actually  
reading it. The winner will be picked randomly  
so if you feel like providing some constructive  
criticism, your comments will not affect your  
chances of winning :)

Please provide feedback on this newsletter and  
if you have any CI related news items please  
keep us posted ([d.coyle@ieee.org](mailto:d.coyle@ieee.org))

Dr. Damien Coyle  
Chair, IEEE CIS UKRI Chapter:

<http://ewh.ieee.org/r8/ukri/cis/>

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