



CMCN

Capital Markets
Collaborative Network

COLLABORATE | EDUCATE | INNOVATE



Welcome to the Capital Markets Collaborative Network

PhD showcase and networking lunch

at the Great Hall,

University of Ulster, Magee campus

26 June 2014

Northern Ireland may not have a stock exchange or a real-life trading floor, but it does have a growing cluster of companies in the Capital Markets technology sector. In recent years we have seen continued investments and expansions by international firms such as Citi, Fidessa, NYSE Technologies and indigenous companies including First Derivatives which all provide technology solutions and consulting services to the Capital Markets industry. In addition Northern Ireland has 11 globally recognised ICT related research centres including the Institute of Electronics, Communications and Information Technology (ECIT) at Queen's University of Belfast and the Intelligent Systems Research Centre (ISRC) at University of Ulster. With support from Invest Northern Ireland, these founding companies, along with the two University research centres have come together to create the Capital Markets Collaborative Network. This is a key initiative working in partnership to strengthen the research base and graduate skills within Northern Ireland. Each of the companies involved in the network has previously worked individually with one or both universities, but this is the first time they have collectively used their combined effort in an organised network.

Vision Statement:

“The vision of the network is to position Northern Ireland as a global centre of excellence for R&D in Capital Markets Engineering.”

Peter Devine

Network Director

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The Capital Markets Collaborative Network PhD students:

<p>Scott McDonald</p>  A portrait of Scott McDonald, a man with short brown hair, wearing a dark blue button-down shirt. He is standing in front of a window with a view of a green landscape.	<p>Scott McDonald is from Bailieborough, Co. Cavan. He received a B.Sc. in Quantitative Finance (1st Class Honours) in 2010 from Dublin City University. He then went on to complete a M.Sc. in Financial and Industrial Mathematics (1st Class Honours), also from DCU. During this time Scott pursued studies related to asset pricing, financial engineering and econometrics, with a research project examining the long-run behaviour of stochastic differential equations with memory. His Ph.D. work is focused on the application of computational intelligence techniques to financial forecasting and portfolio management. More specifically, self-organising fuzzy neural networks are used to predict financial time series using a range of historical data. This has resulted in a number of publications at international conferences.</p>
<p>Sean Trainor</p>  A portrait of Sean Trainor, a man with short brown hair, wearing a blue and white striped polo shirt under a dark brown jacket. He is standing in front of a brick building with a clock tower.	<p>Sean Trainor is from Tyrella, near Downpatrick, County Down, where he has lived almost all of his life. He studied Mathematics at Queen's University Belfast, graduating with a MSci, mostly in Pure Mathematics, in 2008. After graduation he worked in Agriculture for 3 years, however he always planned to return to academic study, and when this interesting opportunity arose he took the chance. As a PhD student, Sean has worked on the acceleration of derivatives pricing algorithms using parallel processing on GPU and multicore architectures.</p>
<p>Alexandra Cowan</p>  A portrait of Alexandra Cowan, a woman with long dark hair, wearing a brown jacket. She is standing in front of a brick building with a clock tower.	<p>Alexandra Cowan is originally from Edinburgh, but grew up in Holywood, Northern Ireland. Alex attended Queens University, Belfast where she obtained a first class BSc in Mathematics and Statistics and Operational Research. As an undergraduate she studied a range of modules in pure and applied mathematics and developed a particular interest in applied statistics. After graduating Alex travelled across North America and spent time in East Africa. Upon her return she took up a post as a business manager in Belfast. During a short work experience in a start-up hedge fund Alexandra developed an interest in financial markets. The capital markets PhD studentships were an ideal opportunity to combine both her interest in mathematics and finance.</p>

Yi Cao



Yi Cao received the B.Eng. degree in Aeronautics from the Beijing University of Aeronautics and Astronautics, Beijing, and the M.S. degree in computer science from Florida International University, Miami, USA, in 2002 and 2005, respectively. He is currently pursuing the Ph.D. degree in Machine Learning with the University of Ulster.

Before commencing his PhD, Yi worked in industry for 5+ years. His professional experience began as an Integrated Circuit and System Engineer with Vimicro and Conexant, from 2005 to 2008, where he designed and verified processors by C++ and FPGA. From 2008 to 2011, he worked as a Senior System Engineer with the telecoms giant ERICSSON, where he was involved in the entire Software Development LifeCycle (SDLC) for both the software (C++) and hardware (FPGA) of telecommunication broadband products. He has two patents for digital system designs.

Yauheniya Shynkevich



Yauheniya Shynkevich grew up in Grodno, Belarus. She finished gymnasium with a technical bias cum laude. Yauheniya studied physical electronics at the Belarusian State University graduating cum laude in 2010 with a specialist degree. She continued her studies at the named university and received Master's degree in physics and mathematics in 2011. Yauheniya's many honours and awards include annual scholarships from Anton N. Sevchenko scholarship funds and LG Electronics. In 2012, she started her PhD studentship at University of Ulster, Intelligent Systems Research Center researching Computational Intelligence Approaches for Predictive Analytics in Capital Markets

Konstantin Bakanov



Konstantin Bakanov graduated from Queens University Belfast with a BSc in Computer Science in the summer 2008. Following his graduation for the next 4 years he has worked with NYSE Euronext in the role of Software Developer. At NYSE Konstantin worked on building low-latency market data feeds and order routing gateways. As a PhD student Konstantin is working on formalizing technical market indicators, improving their programmability and demonstrating the feasibility of automated low-latency implementation.

Fan Sun



Fan Sun received the MSc. degree in International Accounting and Financial Management from the University of East Anglia, UK in 2009. Before joining the Capital Markets project in 2011 she worked as a Senior Technic Consultant in Xinlung Education Group, UK for two years.

Her research background is in Statistics and Finance, including investment analysis, capital asset pricing model (CAPM), financial model uncertainty analysis. Currently, her main areas of research interest are in social media analysis in financial domain; sentiment analysis and opinion mining; business intelligence and information extraction; text mining; machine learning; natural language processing and computational linguistics; and software development.

Her research project focuses on sentiment analysis in the Capital Markets domain which aims to develop intelligent text processing and analysis tools to search key investor websites to collect sentiment data, both positive and negative in order to predict short term stock trading behaviour.

Eduardo Gerlein



Eduardo Gerlein received the BEng in Electronics from Pontificia Universidad Javeriana (Bogota- Colombia) in 2002 and in 2008 the M.Sc. in Electronics Engineering from the same university. From January 2003 to June 2005 he worked as a Research Assistant in the Department of Electronics Engineering at the Pontificia Universidad Javeriana, with the Intelligent Systems, Robotics and Perception group. Afterwards, he was appointed Lecturer at the Electronics Department at Pontificia Universidad Javeriana. During the summer of 2009, he was awarded with the Summer Research Internship in the Department of Electrical and Computer Engineering at the University of Delaware (Newark - USA), working under supervision of professor Sylvain Cloutier in the development of the course Semiconductor Devices. Since January 2012, he started attending The University of Ulster to pursue a PhD in Computer Science degree, based at the the Intelligent Systems Research Centre, where he is part of the Capital Markets Engineering Group. His research, under the supervision of Professor Martin McGinnity, Dr. Ammar Belatreche and Dr. Sonya Coleman, is focused on the development of hardware architectures for multi-agent systems in FPGA for financial applications. Research Interests: Multi-Agent Systems, Embedded Systems, Robotics and Digital Systems Design.

