

Andrei Marinescu

Research Interests

I am currently researching machine learning based distributed control solutions for dynamic environments. My research interests include reinforcement learning, neural networks, multi-agent systems, predictive analytics, telecommunications, smart grids, microgrids and energy demand forecasting.

Education

- March 2016–present **Research Fellow**, *CONNECT Research Centre for Future Networks and Communications, School of Computer Science and Statistics, Trinity College Dublin*, Dublin, Ireland.
- November 2015–March 2016 **Postdoctoral Researcher**, *Distributed Systems Group, School of Computer Science and Statistics, Trinity College Dublin*, Dublin, Ireland.
- 2011–2015 **PhD. Student**, *Distributed Systems Group, School of Computer Science and Statistics, Trinity College Dublin*, Dublin, Ireland.
- 2008–2010 **Masters of Science in Engineering**, *Aalborg University, Denmark*, Grade: 7.9, Scale of -3 (unacceptable) to 12 (excellent).
Focus on Signal processing with specialisation in GPS Technology
- 2008–2009 **Erasmus Exchange Student**, *Aalborg University, Denmark*.
- 2005–2009 **Bachelor in Telecommunications**, *"Transilvania" University of Brasov*, Average Grade: 9.42, Diploma Thesis Grade 10, Scale of 1 (insufficient) to 10 (excellent).
Faculty of Electrical Engineering and Computer Science
- 2001–2005 **Baccalaureate Diploma**, *"Unirea" High School Brasov*, Grade: 8.89, Scale of 1 (insufficient) to 10 (excellent).
Focus on Mathematics-Computer Science, Intensive English

PhD Thesis

- Title Prediction-Based Multi-Agent Reinforcement Learning in Inherently Non-Stationary Environments
- Supervisors Ivana Dusparic, Siobhán Clarke
- Description My research focuses on improving multi-agent reinforcement learning performance in non-stationary environments by predicting future environment behaviour. My research is in the area of smart-grids/microgrids, where I'm employing energy demand forecasting techniques for demand side management algorithms.

Master Thesis

- Title *Improving the Position Accuracy with DGPS and EGNOS*
- Supervisors Professor Kai Borre
- Description The thesis presents a study on techniques involved to increase GPS accuracy. A fusion of DGPS and EGNOS is employed towards obtaining more accurate location results.

Academic Experience

- 2018 **Teaching**, *Complex Systems Science for Communication Networks*, Machine Learning Applications Submodule, Trinity College Dublin.
- 2017-2018 **Supervision**, *Final Year Project*, Business Computing, Dublin Institute of Technology.
- 2016-2017 **Supervision**, *Final Year Project*, Electronic and Electrical Engineering, Trinity College Dublin.
- 2016 **Teaching**, *Artificial Intelligence (AI and agents)*, Trinity College Dublin.
- 2014-2015 **Teaching Assistant**, *Introduction to Programming (Java)*, Trinity College Dublin.
- 2014 **Teaching**, *Computer Networks*, Trinity College Dublin.
- 2012-2014 **Demonstrating**, *C++, Java, Processing*, Trinity College Dublin.

Awards and Grants

- 2018 **Co-Author**, Science Foundation Ireland and National Science Foundation China Collaboration. CONNECT partnership with Tsinghua University, Beijing, under grant 17/NSFC/5224: Smart Networking in the Era of AI. Overall funding awarded to CONNECT: 747,000 euro.
- 2018 **Recipient**, Royal Irish Academy Charlemont travel grant

Research Projects Involvement

- 2018 **Work Package Leader**, Science Foundation Ireland and National Science Foundation China Collaboration project, CONNECT partnership with Tsinghua University
- 2016-2018 **Technical Lead**, Huawei Sweden Fully Funded Project for CONNECT: Self-learning in Radio Resource Management

Professional Experience

- 2010–2012 **Researcher in Electronics and Telecommunications**, TEHMIN BRASOV S.R.L..
Worked on Passenger Information Systems (PIS), and was responsible for developing and implementing a train tracking system in real-time over the Internet. The last project I worked on involved PIS and diagnose for trams and in particular location-aware information.

Internships

- 2008 **Internship in Telecommunications**, *PSE Siemens*, Brasov, Romania.

Certificates

- 2018 **Deep Learning, a 5-course specialization by deeplearning.ai**, *Coursera*.
- 2017 **Machine Learning by Stanford University**, *Coursera*.
- 2010 **Certificate in Automation Systems, CANopen, CAN-Powerline**, *Selectron Systems AG*, Lyss, Switzerland.
- 2010 **Certificate for Passenger Information System (PIS) Training**, *EKE-Electronics Ltd.*, Espoo, Finland.
- 2004 **IELTS Certificate in Advanced English**, *University of Cambridge Examinations*.

Skills

- Programming C, C++, Java, Processing, Python, Matlab, Android, Keras, Tensorflow
- Research Topics Machine Learning (Reinforcement Learning, Neural Networks), Multi-agent Systems
- Others \LaTeX , Adobe Photoshop

Languages

Romanian *Native* English *Fluent* German *Basic*
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Interests

Traveling, Trekking, Sports: *Football, Skiing*, Reading: *Science Fiction, Fantasy*

Publications

- 2018 **A. Marinescu**, I. Macaluso, and L. A. DaSilva. A multi-agent neural network for dynamic frequency reuse in LTE networks. *Workshop on Promises and Challenges of Machine Learning in Communication Networks (ML4COM), ICC IEEE*
- 2017 **A. Marinescu**, I. Macaluso, and L.A. DaSilva. System Level Evaluation and Validation of the ns-3 LTE Module in 3GPP Reference Scenarios. *ACM International Symposium on QoS and Security for Wireless and Mobile Networks (Q2SWinet17)*
- I. Dusparic, A. Taylor, **A. Marinescu**, F. Golpayegani and S. Clarke. Residential demand response: Experimental evaluation and comparison of self-organizing techniques. *Renewable and Sustainable Energy Reviews*
- A. Marinescu**, I. Dusparic, and S. Clarke. P-MARL: Prediction-Based Multi-Agent Reinforcement Learning for Inherently Non-Stationary Environments, *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*
- 2015 **A. Marinescu**, I. Dusparic, A. Taylor, V. Cahill and S. Clarke. P-MARL: Prediction-Based Multi-Agent Reinforcement Learning for Non-Stationary Environments, *ACM Proceedings of the 2015 International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*
- I. Dusparic, A. Taylor, **A. Marinescu**, V. Cahill and S. Clarke. Maximizing Renewable Energy Use with Decentralized Residential Demand Response, *IEEE International Smart Cities Conference (ISC2)*
- 2014 **A. Marinescu**, I. Dusparic, C. Harris, V. Cahill and S. Clarke. A Dynamic Forecasting Method for Small Scale Residential Electrical Demand, *IEEE International Joint Conference on Neural Networks (IJCNN)*
- A. Marinescu**, I. Dusparic, C. Harris, S. Clarke, and V. Cahill. A hybrid approach to very small scale electrical demand forecasting, *IEEE Innovative Smart Grid Technologies (ISGT)*
- C. Harris, I. Dusparic, **A. Marinescu**, S. Clarke, and V. Cahill. Set Point Control for Charging of Electric Vehicles on the Distribution Network, *IEEE Innovative Smart Grid Technologies (ISGT)*
- 2013 **A. Marinescu**, C. Harris, I. Dusparic, S. Clarke, and V. Cahill. Residential electrical demand forecasting in very small scale: An evaluation of forecasting methods, *IEEE International Workshop on Software Engineering Challenges for the Smart Grid (SE4SG)*
- I. Dusparic, C. Harris, **A. Marinescu**, V. Cahill, and S. Clarke. Multiagent residential demand response based on load forecasting, *IEEE Conference on Technologies for Sustainability (SusTech)*
- 2010 **A. Marinescu** and D. Catalin. Towards improving positioning with the use of DGPS and EGNOS, *IEEE International Symposium on Electronics and Telecommunications (ISETC)*