Andrei Marinescu

Research Interests

I am currently researching distributed autonomic control solutions for dynamic environments. My research interests include reinforcement learning, multi-agent systems, predictive analytics, 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.

September 2011–October 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.

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Masters 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

2016 **Teaching**, *Artificial Intelligence*, 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.

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

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

Research Topics Machine Learning (Reinforcement Learning, Neural Networks, Self-Organizing Maps), Multi-agent Systems, Pattern Change Detection/Matching, GNSS, DGPS, EGNOS

Others LaTeX, Adobe Photoshop

Languages

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

Interests

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

Publications

under review **A. Marinescu**, A. Taylor, S. Clarke, I. Serban and C. Marinescu. Hardware-in-the-loop Simulation and Evaluation of Microgrid Demand Response using Multi-agent Reinforcement Learning. *IEEE Transactions on Industrial Informatics*

2017 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)*

2015 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)*

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