Andreea Radulescu

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Professional Summary

Experienced robotics professional with a solid background in research, design, and development. Demonstrated expertise in formulating and implementing optimal control strategies, path planning and trajectory optimisation solutions for a wide range of robotics platforms. Track record of guiding teams to successful outcomes through strategic planning and effective problem-solving.

Education

2011–2016 **PhD Robotics**, *University of Edinburgh*, School of Informatics,
PhD Thesis: *Exploiting Variable Impedance in Domains with Contacts*.
Institute of Perception, Action and Behaviour

2010–2011 **MSc Artificial Intelligence**, *University of Edinburgh*, School of Informatics,
MSc Thesis: *Exploiting Variable Physical Damping*.
Graduated with Distinction

2004–2009 **BEng Automatic Control and Applied Informatics**, *"Politehnica" University of Bucharest*,
Faculty of Automatic Control and Computers.
System and Computer Engineering

Professional Experience

2019–present **Research, Design and Development**, Dyson Technology Ltd.

- **2021 - present : Robotics Research Control Team Manager**
  Helping define the minimum viable product and the project goals based on product design intent.
  Defining the technologies involved, resources required, their allocation and a viable timeline.
  Leading a team of engineers to deliver the technical solutions to achieve those goals.
  Ensuring alignment with other parts of the team (mechanical design, electronics, perception, high level planning, safety etc).
  Recruiting new team members based on the project requirements.
  Supporting the personal and professional development of the team.
  Setting up collaborations with academic partners.

- **2020 - 2021 : Lead Robotics Research Engineer**
  Helped the tech lead define the technical solutions to achieve the product design goals.
  Implemented the technical solution in collaboration with other members of the control team.
  Collaborated across research teams to help implement the technology solutions dictated by the product requirements.

- **2019 - 2020: Senior Robotics Research Engineer**

2016–2019 **Advanced Robotics - Dynamic Legged Systems**, Istituto Italiano di Tecnologia.

- **2018 - 2019 : Senior PostDoctoral Researcher**
  Helped define the research plan of the group.
  Co-wrote the project proposals for the VINUM programme and engaged in defining the research plan, required resources and the deliverables timeline. This project tackled the emerging challenge of the dramatic shortage in skilled labor and lower grape prices using robotic solutions.
  Supervised PhD projects.

- **2016 - 2018 : PostDoctoral Researcher**
  Helped develop the planning and control strategies for quadruped robots.
  Helped define the research plan for PhD student projects in the area of planning and control for quadruped robots.
  Recruited students for PhD/MSc projects and supervised their work.
  Provided public outreach communications and delivered demos of the research.

Miscellaneous

2012–2016 **Teaching Assistant**, University of Edinburgh.
Robotics: Science and Systems, System Design Process, Data Mining and Exploration

2012 - 2015 **Public Engagement Volunteer**, University of Edinburgh.
Science communication at public outreach events. Open doors day volunteer.

2009 **Process Engineering Department Intern**, Dacia, Group Renault.
Protyped the backup procedure for the software management on the assembly lines system.

Technical Skills

Programming	Matlab, C++, Python, PyTorch, LabView
Simulation	Gazebo, Pybullet, Unity
General Tools	Git, Jira, Trello, LaTeX, Tableau, Miro

Languages

English	Fluent
Romanian	Native speaker
German	Intermediate
Italian	Intermediate

Research

Patents

2022 **Dynamic Stability of a Robot Manipulator**, Documents: GB2620638(A) GB2620639(A), Applicant: Dyson Technology Ltd.
Inventors: Edoardo Farnioli, Andreea Radulescu, Giulio Cerruti

Invited Talks

2018 **Robust Locomotion Strategies on the HyQ Robot Series**, *Dynamic Legged Locomotion in Realistic Terrains Workshop*, The International Conference on Robotics and Automation (ICRA 2018), Brisbane, Australia.

Papers

2020 **Soft Terrain Adaptation and Compliance Estimation (STANCE): Locomotion Adaptation Over Soft Terrain**, IEEE Transactions on Robotics (T-RO).
Authors: Shamel Fahmi, Michele Focchi, Andreea Radulescu, Geoff Fink, Victor Barasuol, Claudio Semini

2018 **Simultaneous Contact, Gait, and Motion Planning for Robust Multilegged Locomotion via Mixed-Integer Convex Optimization**, The International Conference on Robotics and Automation (ICRA 2018).
Authors: Bernardo Aceituno-Cabezas, Carlos Mastalli, Hongkai Dai, Michele Focchi, Andreea Radulescu, Darwing G. Caldwell, José Cappelletto, Juan C. Grieco, Gerardo Fernández-López, Claudio Semini

2017 **Learning Optimal Gait Parameters and Impedance Profiles for Legged Locomotion**, Humanoid Robots (Humanoids 2017).
Authors: Elco Heijmink, Andreea Radulescu, Brahayam Ponton, Victor Barasuol, Darwing G. Caldwell, Claudio Semini

2017 **Whole-body Trajectory Optimization for Non-periodic Dynamic Motions on Quadrupedal Systems**, The International Conference on Robotics and Automation (ICRA 2017).
Authors: Andreea Radulescu, Ioannis Havoutis, Darwing G. Caldwell, Claudio Semini

2017 **Trajectory and Foothold Optimization Using Low-Dimensional Models for Rough Terrain Locomotion**, The International Conference on Robotics and Automation (ICRA 2017).
Authors: Carlos Mastalli, Michele Focchi, Ioannis Havoutis, Andreea Radulescu, Sylvain Calinon, Jonas Buchli, Darwing G. Caldwell, Claudio Semini

2017 **Probabilistic Contact Estimation and Impact Detection for State Estimation of Quadruped Robots**, The International Conference on Robotics and Automation (ICRA 2017).
Authors: Marco Camurri, Maurice Fallon, Stephane Bazeille, Andreea Radulescu, Victor Barasuol, Darwing G. Caldwell, Claudio Semini

2017 **Optimal Control of Variable Stiffness Policies: Dealing with Switching Dynamics and Model Mismatch**, *Springer Tracts in Advanced Robotics*, Geometric and Numerical Foundations of Movements.
Authors: Andreea Radulescu, Jun Nakanishi, David J. Braun, Sethu Vijayakumar

2016 **Optimization for non-periodic dynamic motions of legged systems**, The 9th International Workshop on Human-Friendly Robotics (HFR 2016).
Authors: Andreea Radulescu, Ioannis Havoutis, Darwing G. Caldwell, Claudio Semini

2015 **Optimal Control of Multi-Phase Movements with Learned Dynamics**, IEEE International Conference on Man-Machine Interactions (ICMMI).
Authors: Andreea Radulescu, Jun Nakanishi, Sethu Vijayakumar

2014 **Spatio-Temporal Stiffness Optimisation in Movements with Switching Dynamics**, IEEE Transactions on Robotics (T-RO) Journal *(currently under review)*.
Authors: Jun Nakanishi, Andreea Radulescu, David Braun, Sethu Vijayakumar

2013 **Spatio-temporal Optimisation for Multi-phase Movements: Dealing with Contacts and Switching Dynamics**, IEEE/RSJ International Conference of Intelligent Robots and Systems, Tokyo, Japan.
Authors: Jun Nakanishi, Andreea Radulescu, Sethu Vijayakumar

2012 **Exploiting Variable Physical Damping in Rapid Movement Tasks**, IEEE/ASME International Conference on Advanced Intelligent Mechatronics, Kaohsiung, Taiwan **[AIM 2012 Best Student Paper Award Finalist]**.
Authors: Andreea Radulescu, Matthew Howard, David Braun, Sethu Vijayakumar