

# Andreea Rădulescu

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## Professional Summary

Robotics control leader with extensive experience in architecting and deploying advanced control systems for complex robotic platforms. Expertise in whole-body control, optimal control, and trajectory optimisation for dynamic locomotion and manipulation. Currently driving the integration of reinforcement learning and AI-driven methods to unlock adaptive, autonomous robotic capabilities in unstructured environments.

## 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

- 2024–present **ALL3 Ltd.**, MOBILE ROBOTICS
- **Head of Control**  
Defining and driving the development roadmap for the Mantis robotic platform, enabling automation of construction site operations.  
Leading the control team responsible for the infrastructure underpinning core locomotion and manipulation capabilities across the robotic fleet.  
Coordinating the evolution of the control architecture toward reinforcement learning-based controllers and data-driven optimisation frameworks, integrating learning-based techniques into real-time robotic systems.
- 2019–2024 **Research, Design and Development**, DYSON TECHNOLOGY LTD
- **2021 - 2024 : Robotics Research Control Team Manager**  
Helped define the minimum viable product and the project goals based on product design intent.  
Defined 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.  
Ensured alignment with other parts of the team (mechanical design, electronics, perception, high level planning, safety etc).  
Recruited new team members based on the project requirements.  
Supported the personal and professional development of the team.  
Set 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

Prototyped the backup procedure for the software management on the assembly lines system.

## Technical Skills

Programming Matlab, C++, Python, PyTorch, LabView

Simulation Gazebo, MuJoCo, Pybullet, Unity

General Tools Git, Jira, Trello, L<sup>A</sup>T<sub>E</sub>X, 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 CAPPELLETTA, 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