Vassil Atanassov

Oxford, United Kingdom

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Education

University of Oxford **Oxford, UK**
DPhil (PhD) Engineering Science *2023-2027*
PhD in Robotics as part of the Dynamic Robot Systems group at the Oxford Robotics Institute. Fully funded iCASE from UKRI EPSRC in collaboration with Dyson.

Delft University of Technology **Delft, Netherlands**
MSc Robotics, Cum Laude *2021-2023*
Strong focus on Deep Learning, Reinforcement Learning and Model-based control.

University of Glasgow **Glasgow, UK**
BEng Mechanical Engineering, First Class Honours *2017-2021*
Graduated top 5% of the class with a CGPA of 92%, focus on Dynamics, Control, and Robotics

Research Experience

Doctoral Researcher
Oxford Robotics Institute, University of Oxford *Sept 2023 - Present*
- Research focused on scalable legged robot locomotion and loco-manipulation, using Deep Learning and Reinforcement Learning methods.
- Developed an unsupervised skill discovery algorithm to autonomously learn locomotive skills without task-rewards.
- Successfully deployed the controller as part of a larger C++ software stack on the ANYmal quadruped robot.

Master's Graduate Student
Delft University of Technology *Feb 2023 - Aug 2023*
- Developed a state-of-the-art Deep Reinforcement Learning (DRL) controller for agile jumping on the Unitree Go1 quadruped robot.
- Validated the policy with extensive hardware experiments and achieved significantly larger jumps compared to prior controllers.

Undergraduate Thesis Student
University of Glasgow *Oct 2020 - Apr 2021*
- Developed implementations for existing reactive navigation controllers for mobile robots.
- Devised adaptations that significantly improved the performance in complex and unknown scenarios.

Work Experience

Teaching Assistant **Oxford, UK**
University of Oxford *Jan 2025 - Present*
Organised and led tutorials for the C18: Robotics and Computer Vision (Undergraduate), B20: Machine Learning (Undergraduate), and AIMS: Robotics (Graduate) courses.

Teaching Assistant **Delft, Netherlands**
TU Delft, Cognitive Robotics *Sep 2022 - Nov 2022*
Led tutorials for the Machine Learning for Robotics (Graduate) course.

Research Intern **Delft, Netherlands**
Cognitive Robotics, TU Delft *Feb 2022 - Nov 2022*
Research internship under the supervision of Dr. Cosimo Della Santina, working on hardware design of a spring-loaded Unitree Go1 quadruped, together with model-based jumping control, as part of the Natural Intelligence EU project.

Teaching Assistant **Glasgow, UK**
University of Glasgow *Jan 2021 - May 2021*
Conducted tutorial sessions for the Dynamics 1 (Undergraduate) course.

Research Intern, Glasgow **Glasgow, UK**
FUSE Centre for Doctoral Training *Aug - Oct 2020*
Worked on ultrasound phased array and Full Matrix Capture testing, collaborated on a novel method to process and display 3D laser data.

Publications

Atanassov V., Yu W., Mitchell A.L., Finean M.N., Havoutis I. (2024), *"Constrained Skill Discovery: Quadruped Locomotion with Unsupervised Reinforcement Learning"*. [**Under Review**]

Atanassov V., Ding J., Kober J., Havoutis I., Della Santina C. (2024), *"Curriculum-Based Reinforcement Learning for Quadrupedal Jumping: A Reference-free Design"*. [**IEEE Robotics & Automation Magazine**]

Ding J., Posthoorn P., **Atanassov V.**, Boekel F.G.M, Kober J., Della Santina C. (2024), *"Delft E-Go Quadrupedal Robot: Parallel Compliance Design, Control, and Validation"*. [**IEEE Transactions on Mechatronics**]

Ding J., **Atanassov V.**, Panichi E., Kober J., Della Santina C. (2023), *"Robust Quadrupedal Jumping with Impact-Aware Landing: Exploiting Parallel Elasticity"*. [**IEEE Transaction on Robotics**]

Technical and Language Skills

Computer Science: Python, C++, MATLAB, Machine Learning (PyTorch), Linux, Git

Robotics: Robot Operating System (ROS), Gazebo, Isaac Sim/Gym, Reinforcement Learning, Hardware Experience (Unitree, ANYmal), Trajectory Optimisation, Model-predictive control

Languages: English (fluent), Bulgarian (mother tongue), German (B1)

Achievements and Hobbies

- UKRI EPSRC PhD Scholarship.
- University of Glasgow Engineering Excellence List 2018, 2019, 2020, 2021.
- Finalist of the Engineers without Borders Design Challenge in 2018.
- Reviewer for IEEE RA-L, ICRA, ICLR, T-ASE.
- Hobby robotics and automation, woodcarving, cooking, hiking, reading, guitar.