

Vassil Atanassov

Oxford, United Kingdom

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🌐 vassil-atn • Portfolio

Education

University of Oxford <i>DPhil (PhD) Engineering Science</i> 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.	Oxford, UK 2023-2027
Delft University of Technology <i>MSc Robotics, Cum Laude</i> Strong focus on Deep Learning, Reinforcement Learning and Model-based control.	Delft, Netherlands 2021-2023
University of Glasgow <i>BEng Mechanical Engineering, First Class Honours</i> Graduated top 5% of the class with a CGPA of 92%, focus on Dynamics, Control, and Robotics	Glasgow, UK 2017-2021

Research Experience

Doctoral Researcher <i>Oxford Robotics Institute, University of Oxford</i> ○ 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.	<i>Sept 2023 - Present</i>
Master's Graduate Student <i>Delft University of Technology</i> ○ 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.	<i>Feb 2023 - Aug 2023</i>
Undergraduate Thesis Student <i>University of Glasgow</i> ○ Developed implementations for existing reactive navigation controllers for mobile robots. ○ Devised adaptations that significantly improved the performance in complex and unknown scenarios.	<i>Oct 2020 - Apr 2021</i>

Work Experience

Teaching Assistant <i>University of Oxford</i> Organised and led tutorials for the C18: Robotics and Computer Vision (Undergraduate), B20: Machine Learning (Undergraduate), and AIMS: Robotics (Graduate) courses.	Oxford, UK <i>Jan 2025 - Present</i>
Teaching Assistant <i>TU Delft, Cognitive Robotics</i> Led tutorials for the Machine Learning for Robotics (Graduate) course.	Delft, Netherlands <i>Sep 2022 - Nov 2022</i>

Research Intern

Cognitive Robotics, TU Delft

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.

Delft, Netherlands

Feb 2022 - Nov 2022

Teaching Assistant

University of Glasgow

Conducted tutorial sessions for the Dynamics 1 (Undergraduate) course.

Glasgow, UK

Jan 2021 - May 2021

Research Intern, Glasgow

FUSE Centre for Doctoral Training

Worked on ultrasound phased array and Full Matrix Capture testing, collaborated on a novel method to process and display 3D laser data.

Glasgow, UK

Aug - Oct 2020

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.