Ignat Georgiev 🤖

PhD in Robot Learning at Georgia Tech

I am a scientist/engineer passionate about robot learning; advised by Animesh Garg. My deeply seeded belief is that the future of robotics is in large data-driven differentiable approaches. I am particularly interested in multi-task foundational models, RL, and diffusion policies for robots operating in the real-world.

Work Experience

Applied Scientist

Oxbotica, UK   2021 - 2022

✓ Researched data-driven methods for generating adversarial scenarios for autonomous vehicles to accelerate edge-case scenarios in the MetaDriver product
✓ My work focuses on creating adversarial agents using model-free and model-based RL, representation learning from high-dim data, and meta-learning
✓ Worked with Python, PyTorch, and large-scale clusters and distributed training

Research Engineer

Kopernikus Automotive, Germany   2020 - 2021

✓ Worked on autonomous valet parking product based on external cameras
✓ Researched and developed a hybrid path planning system for parking combining random sampling and numerical optimization in Rust and C++
✓ Successfully led a project to integrate with 5 OEMs and demo product at IAA

Founder & AI Team Lead

Edinburgh University Formula Student, UK   2017 - 2020

✓ Founded and led a student project to develop an autonomous racecar
✓ The team won 2 international competitions and raised a budget of over £70,000
✓ Architected and led the development of the AV stack with ROS / C++ / Python
✓ Planned and organized the development of DL camera/lidar object detection, multi-sensor EKF, particle filter SLAM, elastic band path planning, MPC, functional safety, software integration, CI/CD, and a custom Gazebo simulation
✓ Worked on end-to-end autonomous driving from camera images with deep RL

Education

PhD Machine Learning

Georgia Institute of Technology, USA   2022 - current

MSc Robotics and Artificial Intelligence

The University of Edinburgh, UK   2015 - 2020

✓ First-Class Honors (4.0 GPA)
✓ Focus on linear algebra, probability, robotics, ML, RL, and optimal control
✓ Thesis: Adaptive Motion Control for Autonomous Racing

Selected Publications

PWM: Policy Learning with Large World Models
Ignat Georgiev, *additional authors omitted due to review process*
Submitted, Conference on Neural Information Processing Systems (NeurIPS), 2024

Adaptive Horizon Actor-Critic for Policy Learning in Differentiable Simulation
Ignat Georgiev, Krishnan Srinivasan, Jie Xu, Eric Heiden, and Animesh Garg
International Conference on Machine Learning (ICML), 2024

Contact Details

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GitHub: imgeorgiev

Technical skills

Python

PyTorch

CUDA

C++ (11/14/17)

Rust

ROS & ROS2

Unix / Linux / bash

Git / Gitlab CI / Jenkins

Robot simulators

Algorithms & Structures

Distributed & Concurrent systems

Data Science & Visualization

Professional Skills

Analytical thinking

Teamwork

Project Management

Leadership

Empowering others

Honors & Awards

Inspirational Graduate

Best Robotics Thesis

Student Employee of the Year