

Olek Osikowicz

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Education

PhD	University of Sheffield , School of Computer Science	Sheffield, UK
	• Efficient and reliable simulation-based Autonomous Driving Systems testing	Sept 2023 – present
	• <i>PhD Supervisors: Donghwan Shin & Phil McMinn</i>	
BSc	University of Sheffield , Computer Science	Sheffield, UK
	• Graduated with First-Class Honours	Sept 2020 – June 2023
	• Dissertation: <i>Grounded In Reality Autonomous Driving Systems Testing</i>	

Current Projects

Distributed ML infrastructure

- Designed and deployed a multi-node computing cluster using Ray to parallelize software-in-the-loop evaluations
- Significantly improved the throughput of ML evaluation experiments in testing research group

Multi-Fidelity Test Generation

- Designed Multi-Fidelity Bayesian Optimization algorithms for Autonomous Driving Systems (ADS) testing
- Reduced costs of driving models evaluation by 16.8% compared to state-of-the-art baselines

Variational Autoencoder (VAE) for Driving Scenarios

- Implemented a deep learning pipeline to learn compact latent representations of driving scenarios
- Designed, trained and evaluated the model enabling efficient sampling of driving scenarios for ADS testing

Flaky Test Analysis for ADS

- Empirically discovered and analysed the causes of flaky tests in simulation-based ADS testing
- Reported and published mitigation guidelines to reduce the impact of flaky tests on ADS verification

Employment

University of Sheffield , Research Assistant in Simulation-Based Testing	Sheffield, UK
• Developing automated Python tooling for large-scale ADS simulation and testing	June 2025 – present
• Project: "Simulation-Based Testing for Mobility Cyber-Physical Systems of Systems"	
Dover Fueling Solutions , Summer Intern	Kraków, Poland
• Built and validated automated ETL data pipelines on Microsoft Azure	June 2022 – Sept 2022
• Worked with SQL warehouses and Databricks for scalable data processing	

Skills

Programming: Python (Expert), C++, SQL, TypeScript

Distributed computing: Ray, Docker, AWS (EC2/S3), GCP, SLURM, Multiprocessing, with Loki, Prometheus, Grafana

Machine Learning: Bayesian Optimization, VAEs, Reinforcement Learning in PyTorch, Pandas, Scikit-Learn

Publications

Multi-Fidelity Bayesian Optimization for Simulation-Based Autonomous Driving Systems Testing	June 2025
Olek Osikowicz , Phil McMinn, Wei Xing, Donghwan Shin 2026 IEEE Intelligent Vehicles Symposium (IV 2026)	
Empirically Evaluating Flaky Tests for Autonomous Driving Systems in Simulated Environments	Apr 2025
Olek Osikowicz , Phil McMinn, Donghwan Shin 10.1109/FTW66604.2025.00009 2025 IEEE/ACM International Flaky Tests Workshop (FTW 2025)	