

Olek Osikowicz

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Education

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

Current Projects

Generative Modelling for Driving Scenarios

- Implemented a Variational Auto-encoder (VAE) in PyTorch to learn compact latent representations of driving scenarios
- Designed, trained and evaluated the model enabling efficient sampling of driving scenarios for safety-critical agent evaluation

Distributed Data Infrastructure

- Designed and deployed a multi-node computing cluster using Ray actors and AWS EC2 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) verification
- Reduced the computational cost of evaluating driving models by 16.8% compared to state-of-the-art baselines
- Maximized information gain on model behavior while minimizing simulation costs by varying simulator fidelity

Flaky Test Analysis for Autonomous Driving

- Empirically discovered and analysed the causes of flaky tests in simulation-based autonomous driving testing
- Published mitigation guidelines to reduce the impact of flakiness in autonomous driving verification

Publications

- Multi-Fidelity Bayesian Optimization for Simulation-Based Autonomous Driving Systems Testing** June 2026
Olek Osikowicz, Phil McMinn, Wei Xing, Donghwan Shin
2026 IEEE Intelligent Vehicles Symposium (IV 2026)
- CAWSR: Carla-AutoWare Scenario Runner** Jan 2026
David Gasinski, **Olek Osikowicz**, Gwilym Rutherford, Donghwan Shin
github.com/Intelligent-Testing-Lab/cawsr 🔗 Under review at *Journal of Open Source Software (JOSS)*
- Simulation Nondeterminism and Its Impact on Flaky Tests for Autonomous Driving Systems** Jan 2026
Olek Osikowicz, Phil McMinn, Donghwan Shin
Under review at *Automated Software Engineering (ASE) Journal*
- Empirically Evaluating Flaky Tests for Autonomous Driving Systems in Simulated Environments** Apr 2025

Olek Osikowicz, Phil McMinn, Donghwan Shin

[10.1109/FTW66604.2025.00009](https://doi.org/10.1109/FTW66604.2025.00009) [↗](#) *2025 IEEE/ACM International Flaky Tests Workshop (FTW 2025)*

Employment

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

Skills

Programming: Python (advanced), C++, SQL, TypeScript, React Native, Svelte

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

Machine Learning: PyTorch, Generative Models (VAEs), Bayesian Optimization, Reinforcement Learning

Languages: English (fluent), Polish (native), German (intermediate), Spanish (basic)

Teaching

Software Re-Engineering [↗](#) Mar 2024 – present
Supporting undergraduate and master's students in re-engineering real-world Python projects.

Introduction to Algorithms and Data Structures [↗](#) Feb 2023 – June 2023
Running tutorial sessions for first-year students, explaining the principles of modern algorithms and data structures.

Awards

Best teaching support award by School of Computer Science July 2025

- Recognition of excellence in teaching support as a Graduate Teaching Assistant in Software Re-engineering
- Awarded by Head of School in the 2024/25 academic year

University of Sheffield Billy Ibberson Bursary Feb 2025

- Secured a competitive £1,771 grant for travel expenses and research trainings
- awarded to support research that develops links between academic innovation and industrial practice

Software Hut Prize June 2023

- Awarded for the best software delivery to a real-world client
- recognized for excellence in Agile development and effective team collaboration.

Service

Facilitator, Alan Turing Institute PhD Student Presentations & Networking Day Feb 2026

- Assisted in organising the event, welcomed guests, and moderated Q&A sessions following each presentation

Reviewer, Artifact Evaluation Committee Member for ESOP, FASE and FoSSaCS Jan 2026

- Reviewed and evaluated research artifacts for reproducibility

Student Volunteer, International Conference on Software Engineering (ICSE 2025) Apr 2025

- Assisted in organizing and managing conference sessions and events