

EFIMIA PANAGIOTAKI

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[Website](#) ◊ [GitHub](#) ◊ [LinkedIn](#) ◊ [Google Scholar](#)

RESEARCH INTERESTS

Geometric Deep Learning, Graph Neural Networks, Time-series Prediction, Scene Representation Learning, 3D Spatial Perception, Multimodal Semantic SLAM, Reasoning ML

EDUCATION

University of Oxford, Oxford Robotics Institute (ORI) October 2021 - Present
DPhil in Engineering Science (PhD) *Expected Graduation: January 2026*

Google DeepMind Engineering Science Research Scholarship

Mobile Robotics Group (MRG) & Cognitive Robotics Group (CRG)

- Introspective GNN-based neural pointcloud registration (*paper under review*)
- Real-to-sim event reconstruction via temporal scene graph completion (*paper under review*)
- Hierarchical semantic-geometric scene representations for explainable attention-based localisation
- Research lead of the [RobotCycle project](#): Co-author of 3 successful grant proposals
- Supervisor of 6 MEng students; defining and guiding their research projects
- B16: Software Engineering (OOP, C++) Lab Demonstrator (2022 - 2024)

ETH Zürich, D-ITET, Computer Vision Lab (CVL) February - September 2017
Master Thesis, Visiting Student *Supervisors: Prof. Luc Van Gool & Dr. Dengxin Dai*

- Development of a lightweight object detection algorithm and perception pipeline for semantic boundaries classification as a prior to a visual-inertial SLAM system based on ORB-SLAM and Rovio
- Design, development, and integration of a prototype Visual Inertial (VI) sensor

National Technical University of Athens (NTUA) September 2012 - October 2017
MEng Electrical and Computer Engineering, Diploma (5 years Integrated degree)

- AMZ Racing Driverless Formula Student Team: Perception Software Engineer (2017)
- Prom Racing Formula Student Team: Head of Partnerships, Business, Marketing, and Fundraising. Established a long-term collaboration with Bosch Hellas and raised a total of 45,000 €

PROFESSIONAL EXPERIENCE

OXA (Oxbotica)
Senior ML Engineer (Part-time), Office of the CTO — Oxford, UK *April 2024 - Present*

Working part-time during PhD studies at the Office of the CTO, Prof. Paul Newman. Research and technical strategy on reasoning ML for autonomous vehicles software.

StreetDrone Ltd
Lead Self-Driving Software Engineer (R&D) — Oxford, UK *June 2020 - October 2021*

Leading all self-driving software research and development efforts, including the 5G-enabled CAL project as part of the "[5G Create Scheme](#)" for a prototype [self-driving truck at the Nissan factory](#).

- Technical Lead; defining the technical roadmap, direct collaboration with the CEO to shape the software strategy of the company, led all features development efforts
- Team Lead; provided technical expertise and guidance, led the software team to the successful delivery of the 5G-enabled CAL project and various real-world AV demonstrations, as well as the development of StreetDrone's SaaS product and an open-source AV software project [Project Aslan \[Forbes\]](#)

Software Engineer (R&D) — Oxford, UK

June 2018 - June 2020

Developed a full stack open-source self-driving software [[project page](#)] for the Nissan ENV200 and Renault Twizy for the SMLL Urban AV Trials, [CCAV](#) and [Innovate UK project](#).

- Development of object detection and path planning software extending A* and pure pursuit algorithms
- Development and evaluation of a robust localization and mapping system
- Development of the 3-DoF Vehicle Model of the Renault Twizy for Gazebo simulation [[project page](#)]
- Development of the software communication between ROS and the embedded CAN Bus [[project page](#)]

Williams Grand Prix Engineering Ltd

January - June 2018

Data Processing Engineer — Grove, UK

- Sensors data processing within MAT ATLAS framework, using .NET Framework for C# and MATLAB
- Development of a Graphical User Interface (GUI) for vehicle setup
- Factory-based Race Support during the official Formula 1 events

HONORS AND AWARDS

Queen's Anniversary Prize <i>Investiture, Buckingham Palace</i>	Selected by ORI Professors to represent the PhD students at the ceremony. Award won by ORI in 2023
Program Grant	RobotCycle project (2022)
Equipment Grant	RobotCycle project (2022)
EPSRC IAA Fund	Strategic Fund, RobotCycle project (2024)
PhD Scholarship	Google DeepMind Engineering Science Research Scholarship
Pembroke College	Senior Studentship Award (x1) & Dean of Graduate Funds Award (x2)
Formula Student	1st place overall with AMZ Driverless (Germany 2017)

SKILLS AND INTERESTS

Technical Skills	Python, C/C++ , PyG, JAX, TensorFlow, PyTorch, NetworkX, Docker, CARLA, W&B, ROS/ROS2, Unix Bash, PCL, wxGlade, OpenCV, Matlab, xacro
Languages	Greek (Native), English (Fluent), French (Basic), Italian (Basic)

PUBLICATIONS

Panagiotaki E., Pramatarov G., Kunze L., & De Martini D. CERES: Critical-Event Reconstruction via Temporal Scene Graph Completion. *Under review*

Panagiotaki E., Reinmund T., Mouton S., Pitt L., Shanthini A. S., Tubby W., Towlson M., Sze S., Liu B., Prahacs C., De Martini D., & Kunze L. RobotCycle: Assessing Cycling Safety in Urban Environments. (IV2024) [paper](#). **Invited to submit to the Journal of Field Robotics 2025.**

Gadd M., De Martini D., Bartlett O., Murcutt P., Towlson M., Widodo M., Muşat V., Robinson L., Panagiotaki E., Pramatarov G., Kühn M. A., Marchegiani L., Newman P., & Kunze L. OORD: The Oxford Offroad Radar Dataset. (T-ITS 2024) [paper](#)

Drayson G.*, Panagiotaki E.*, Omeiza D., & Kunze L. CC-SGG: Corner Case Scenario Generation using Learned Scene Graphs. *Equal Contribution, alphabetical order. (Accepted to ICRA2024) [paper](#)

Panagiotaki E., De Martini D., Pramatarov G., Gadd M., & Kunze L. (2023). SEM-GAT: Explainable Semantic Pose Estimation using Learned Graph Attention. (ICAR2023) [paper](#)

Panagiotaki E., De Martini D., & Kunze L. (2023). Semantic Interpretation and Validation of Graph Attention-based Explanations for GNN Models.(ICAR2023) [paper](#)