


CHRISTINA KASSAB

CONTACT

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OVERVIEW

I'm currently a DPhil Candidate at the Oxford Robotics Institute under the supervision of Maurice Fallon. My research focuses on building real-time SLAM frameworks that tightly couple open-vocabulary semantic understanding with localisation and mapping, enabling robots to recognise and reason about arbitrary objects while simultaneously building accurate spatial maps.

EDUCATION

University of Oxford Current

DPhil in Engineering Science

Supervisor: Prof Maurice Fallon

Thesis Title: *A Unified Approach to Semantic and Geometric Mapping*

Imperial College London 2017 - 2022

MEng in Biomedical Engineering

Supervisor: Prof Anthony Bull

Thesis Title: *Terrain prediction using high density sEMG and IMU for lower limb prosthetics*

PAST POSITIONS

Seoul National University 2025

Visiting Researcher

Research visit at the RPM Robotics Lab under Ayoung Kim working on monocular semantic SLAM

Imperial College London 2022

Undergraduate Research Assistant

Real-time object recognition and camera control under varying lighting conditions for a wheeled robot

Össur 2020 - 2021

Research and Innovation Intern

Designing a control system for lower limb prosthetics using IMU and surface EMG

Queen Mary's Hospital 2019

Gait Lab Assistant

Use of Visual3D and Qualisys to analyse stroke patient's gait and concluding with recommendations on appropriate rehabilitation strategies

TEACHING

University of Oxford 2025

Teaching Assistant

Tutorial teaching and coursework marking for a course on optimisation

University of Oxford 2024

Teaching Assistant

Lab assistance for the AIMS CDT course on autonomous exploration, including giving a SLAM tutorial

Imperial College London 2021

Teaching Assistant

Lead TA of a Python course explaining fundamental concepts of good programming practices

PUBLICATIONS

Christina Kassab, Sacha Morin, Martin Buchner, Matias Mattamala, Kumaraditya Gupta, Abhinav Valada, Liam Paull, Maurice Fallon, "OpenLex3D: A New Evaluation Benchmark for Open-Vocabulary 3D Scene Representations," (NeurIPS), 2025

Christina Kassab, Matias Mattamala, Sacha Morin, Martin Buchner, Abhinav Valada, Liam Paull, Maurice Fallon, "The Bare Necessities: Designing Simple, Effective, Open-Vocabulary Scene Graphs", arXiv, 2025

Christina Kassab, Matias Mattamala, Lintong Zhang, Maurice Fallon, "Language-EXtended Indoor SLAM (LEXIS): A Versatile System for Real-time Visual Scene Understanding", Int. Conf. Robot. Autom. (ICRA), 2024

Jianeng Wang, Matias Mattamala, **Christina Kassab**, Lintong Zhang, Maurice Fallon, "Exosense: A Vision-Centric Scene Understanding System for Safe Exoskeleton Navigation," Int. Conf. on Intelligent Robots and Systems (RA-L), 2025

Jianeng Wang, Matias Mattamala, **Christina Kassab**, Nived Chebrolu, Guillaume Burger, Fabio Eneccave, Marine Petriaux, Maurice Fallon, "LT-Exosense: A Vision-centric Multi-session Mapping System for Lifelong Safe Navigation of Exoskeletons," arXiv, 2025

INVITED TALKS

OpenLex3D: A New Evaluation Benchmark for Open-Vocabulary 3D Scene Representations
SafeVLM Workshop, ICRA 2025

Visual-Language Models for Scene Understanding and Localisation
British Machine Vision Association Symposium on Vision and Language, 2024

Visual SLAM for Exoskeletons: Enabling Accurate Navigation in Complex Environments
Computer Vision for Wearable Robotics Workshop, ICRA 2023

SUPERVISION

University of Oxford

Mengyuan Yin, PhD project (2025 - present). Topic: "Long-term Mapping using 3D Scene Graphs" *Advisor*

Helen Fan, 4th Year project (2025 - present). Topic: "3D Representations for Exoskeleton Navigation" *Advisor*

Harry Graves, 4th Year project (2024-2025). Topic: "Egocentric Video Understanding" *Advisor*

AWARDS

Best MEng Project Presentation. For the highest scoring MEng Project, 2022

Device Access Prize for Best Bioengineering Undergraduate Poster Finalist. Awarded by the Biomedical Engineering Division of the Institution of Mechanical Engineers, 2022

Jack Petchey Award. Recognises outstanding young people aged 11-25 across London and Essex, 2017

PROFESSIONAL ACTIVITIES

Reviewing

IEEE Robotics and Automation Letters (RA-L)

IEEE International Conference on Robotics and Automation (ICRA)

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

British Machine Vision Conference (BMVC)

IEEE/CVF International Conference on Computer Vision (ICCV)

IEEE/CVF International Conference on Computer Vision and Pattern Recognition (CVPR)

Leadership

Student Representative of the RAS Technical Committee on Computer and Robot Vision

President of the Oxford Robotic Graduate Society

TECHNICAL SKILLS

Programming: C++, Python

Development: Git, ROS1/ROS2