Curriculum | Vitae

Personal Information

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Summary

I am the LiDAR Perception Tech Lead at Argo AI in Munich, Germany, working on the development of LiDAR data-driven models for Panoptic Segmentation and Object Detection in autonomous driving. I am also a final year PhD student working in Geometric Deep Learning mixed with classical optimization applied to Pose Estimation. I used to be a maintainer for the Point Cloud Library open source project, steering a project used by tens of thousands of users in academia and industry. I'm a proud Homelab maintainer.

Work Experience

► **Position** LiDAR Perception Tech Lead - 2023/Feb and ongoing
Employer Argo AI - Munich, Germany
Description Leading the development of LiDAR data-driven models for autonomous vehicle onboard perception, in the tasks of: Panoptic Segmentation and Occupancy Segmentation. **Core Skills:** Geometric Deep Learning, Computer Vision, PyTorch, Python.

► **Position** Senior Software Engineer - 2022/Jun to 2023/Jan
Employer Argo AI - Munich, Germany
Description Developing LiDAR Object Detection and Semantic Segmentation models for autonomous vehicle onboard perception. **Core Skills:** Geometric Deep Learning, Computer Vision, Tensorflow, Python.

► **Position** Research Intern - 2022/Feb to 2022/Apr
Employer Argo AI - Munich, Germany
Description Developing LiDAR Semantic and Panoptic Segmentation models for offboard maps. **Core Skills:** Geometric Deep Learning, Computer Vision, PyTorch, Python.

► **Position** Computer Vision / Augmented Reality Intern - 2016/Aug to 2017/Apr
Employer Bosch Research and Technology Center - Palo Alto, CA
Description Model based pose tracking of texture-less and highly reflective objects for Augmented Reality. **Core Skills:** Pose Estimation, OpenCV, Point Cloud Library, Eigen, C++.

► **Position** Software Engineer Trainee - 2014/Apr to 2016/Mar
Employer European Space Agency - Noordwijk, Netherlands

Description	Developed mobiPV, procedure viewer enabled with audio and video communications for collaborative work between ground stations and the International Space Station. Technical reviewer for Augmented Reality related projects. **Core Skills:** GStreamer, OpenCV, C, C++, HTML, Javascript, CSS.
▶ Position Employer Description	Software Engineer - 2012/Nov to 2013/Aug LusoSpace - Lisbon, Portugal Development of an inertial Extended Kalman Filter pose tracking system for optical see-through Augmented reality glasses. Improved calibration procedures for multiple in-house sensors. **Core Skills:** Pose Estimation, OpenCV, C++, Python
▶ Position Employer	Junior Full-Stack Web Developer - 2011/Nov to 2012/Oct BIN Buy it Now - Lisbon, Portugal

Relevant Publications

▶	Is Geometry Enough for Matching in Visual Localization? - Q. Zhou*, **S. Agostinho***, A. Ošep and L. Leal-Taixé - European Conference on Computer Vision 2022
▶	(Just) A Spoonful of Refinements Helps the Registration Error Go Down - **S. Agostinho**, A. Ošep, A. Del Bue and L. Leal-Taixé - International Conference on Computer Vision 2021 (Oral)
▶	CvxPnPL: A unified convex solution to the absolute pose estimation problem from point and line correspondences - **S. Agostinho**, J. Gomes and A. Del Bue - Journal of Mathematical Imaging and Vision 2023 - (submitted in 2020)
▶	Loss of Significance and Its Effect on Point Normal Orientation and Cloud Registration - M. Young, C. Pretty, **S. Agostinho**, R. Green and X. Chen - Remote Sensing, 11(11) - 2019

Research Placements

▶ Research Group Institution Project Period	Dynamic Vision and Learning Group Technical University Munich Geometrically driven learn-based point cloud registration and visual localization. 2019/Aug - 2022/Feb
▶ Research Group Institution Project Period	Visual Geometry and Modelling Istituto Italiano di Tecnologia A convex optimization approach for absolute pose estimation from point and line correspondences 2018/Nov - 2019/Apr

Education

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*Equal contribution.

► Study Field	Computer Vision / Deep Learning - Point Cloud Registration, Visual Localization, Absolute Pose Estimation
Institution	Instituto Superior Técnico - Lisbon, Portugal
Degree Title	Doctor of Philosophy - 2016/Apr to 2024/Q1
Grade Average	19 out of 20
► Study Field	Aerospace Engineering - Avionics
Institution	Instituto Superior Técnico - Lisbon, Portugal
Degree Title	Integrated Master of Science - 2004/Sep to 2013/Feb
Awards	Won best graduating MSc student in Aerospace Engineering 2012/2013
Thesis	**Title:** Detection and Localization of Gaseous Point Sources for Environmental Assessment and Monitoring of Critical Infrastructures using Sensor Networks **Grade:** 19 out of 20

Other

Open Source	Core maintainer for the computer vision project Point Cloud Library (PCL)
	Mentor for two Google Summer of Code initiative 2020 projects

Languages

Portuguese	Mother Tongue
English	Proficient. Test of English as a Foreign Language (TOELF iBT) - 111 out of 120.