

Francisco Girbal Eiras

Research Engineer at FiveAI

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FiveAI (Sep. 2018 - Present)

Research Engineer

Working on safe and robust solutions for Hierarchical Planning within the Motion Planning and Prediction team in Edinburgh, under the orientation of Dr. Subramanian Ramamoorthy.



Institute for Systems and Robotics, Lisbon (Apr. 2017 - Sep. 2017)

Graduate Research Assistant

Studied and developed new methods to perform pose estimation through vanishing points in general (central and non-central) omnidirectional cameras which lead to the publication of a paper in one of the top conferences in the field (CVPR'18).

Orientation: Dr. Pedro Miraldo



Institute for Systems and Robotics, Lisbon (Apr. 2016 - Sep. 2016)

Research Student (Undergraduate)

Constructed modules for gesture recognition using RGB-D cameras, from simple binary classification gestures (e.g. waving) to more complex ones (e.g. pointing estimation) and integrated them in a MONARCH robot as part of the INSIDE project.

Orientation: Dr. Tiago Veiga



Education

University of Oxford, Linacre College (Oct. 2017 - Sep. 2018)

MSc Computer Science (Distinction)

Relevant courses: Computational Game Theory, Probabilistic Model Checking

Master Thesis: *"To Err is Human: Designing Correct-by-Construction Driver Assistance Systems using Cognitive Modelling"* under the orientation of Dr. Morteza Lahijanian and Prof. Marta Kwiatkowska



EPFL (Sep. 2016 - Feb. 2017)

Student Exchange (5.75/6)

Relevant courses: Applied Machine Learning, Image and Video Processing, Lab in Image and Signal Processing

Awarded a monthly scholarship under the Swiss-European Mobility Programme



Técnico Lisboa (Sep. 2013 - Jul. 2016)

BSc Electrical and Computer Engineering (18/20)

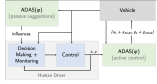
Relevant courses: Algorithms and Data Structures, Signals and Systems, Computational Mathematics, Automatic Control

Among top 2% of the class

Awarded an Academic Excelency Award every year and for the end of the BSc (3 years)

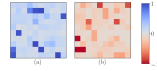


Publications



(To appear) Correct-by-Construction Advanced Driver Assistance Systems based on a Cognitive Architecture

Authors: F. Eiras, M. Lahajinan, M. Kwiatkowska
IEEE CAVS 2019 (Oral presentation)



Towards Provably Correct Driver Assistance Systems through Stochastic Cognitive Modeling

Authors: F. Eiras, M. Lahajinan
RSS 2019: Workshop on Safe Autonomy



Analytical Modeling of Vanishing Points and Curves in Catadioptric Cameras

Authors: P. Miraldo, F. Eiras, S. Ramalingam
2018 IEEE/CVF Conference on Computer Vision and Pattern Recognition

Technical Skills

Research Interests

3D Vision
Mathematical Optimization
Robust Optimal Control
Formal Methods
Machine Learning
Neural Networks/Deep Learning

Programming/Frameworks

Python (scikit-learn, pyTorch)
Matlab
C/C++
LaTeX
HTML/CSS/Javascript
POV-Ray

Language Skills

Portuguese (native)
English (fluent - 8.5 overall IELTS)
Spanish (elementary)
French: (elementary)

Accomplishments

2018 - Honourable mention at LauzHack 2018 for SolarRooftops project (using CV for social good)
2017 - ISR-Lisbon Graduate Research fellowship
2016 - Swiss-European Mobility Programme Studying abroad scholarship
2016 - Academic Excelency Award for BSc (over 3 years)
2016 - ISR-Lisbon Undergraduate Research studentship
2015/16 - Elected the Class representative for BSc and 3rd year
2013 - AFS International Scholarship worth \$25,000
2013 - 3rd place at the Delaware State Science Olympiad in Data Analysis and Genetics

General Interests

General interests: Autonomous Driving, Medical Technology, Economics, Web Design, Reading, Music, Documentaries, Traveling
Hackathons attended: LauzHack (2016), STARHack (2017), Junction (2017), LauzHack (2018)