CARLES IBÁÑEZ I TRULLÉN

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Profile

I am a skilled AI engineer and robotics specialist with a strong foundation in machine learning, computer vision, and data processing. My experience spans developing innovative, data-driven solutions for complex challenges, including deep learning, reinforcement learning, and autonomous systems. With proficiency in Python, C++, and relevant frameworks such as PyTorch, OpenCV and ROS, I have successfully implemented AI models for real-world applications. I thrive in collaborative environments, where my strong communication and problem-solving skills allow me to contribute effectively to multidisciplinary teams.

Education

Master of Science in Autonomous Systems, Denmark's Technical University, Denmark 2021-2023
Relevant Coursework: deep learning, perception, advanced autonomous robotics, remote sensing and GIS.

Bachelor's in Audiovisual Systems Engineering, Universitat Pompeu Fabra, Spain 2016 - 2021
Relevant Coursework: Image analysis and interpretation, image and video processing, statistics and machine learning.
Erasmus+ grant: 6 months stay at Aalborg Universitet in Denmark.

SKILLS

Programming languages	Python (PyTorch, OpenCV), MATLAB, C++, Java and SQL.
Software skills	Version Control (git), Agile, Docker, UNIX, QGIS, ROS/ROS2, LaTeX, AWS.
Languages	Catalan (native), Spanish (native), English (advanced), Danish (beginner).
Certifications	Scrum Master and Product Owner (Scrum Manager).

EXPERIENCE

Teaching Assistant in Advanced Autonomous Robots Feb - May 2023
Denmark's Technical University *Lyngby, Denmark*

- Facilitated student learning in advanced robotics by assisting with the development and comprehension of course exercises, focusing on robotic perception and control.
- Resolved technical issues with robotic systems, ensuring smooth course operations.

Content Delivery Network (CDN) Intern June 2019 - Jan 2020
RakutenTV *Barcelona, Spain*

- Developed and maintained backend software using Python, enhancing the performance and reliability of the streaming API.
- Documented and managed various CDN services, optimizing streaming quality and efficiency.

PROJECTS (more on my portfolio)

Master's thesis: Deep Initialization for Global Localization for Autonomous Mobile Robots. Designed and trained a deep neural network for robotic localization using a 2D LiDAR on an Autonomous Mobile Robot (AMR). The model outperformed state-of-the-art 3D methods in translation prediction by 7.1%, demonstrating significant improvements in localization accuracy. The project was developed in collaboration with Yuman Robots.

Bachelor's thesis: Lens Flare Detection Using Deep Learning. Designed, implemented and tested a deep neural network (combination of a U-Net and GAN architecture) to perform anomaly detection and image restoration for images containing lens flares. The model was able to achieve a SSIM (Structural Similarity Index) of 0.9987 between the reconstructed image and the original image with no flare.