ÒSCAR LORENTE COROMINAS

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EDUCATION

Current – Oct 2020 | **M.Sc. in Computer Vision**
Universitat Autònoma de Barcelona - Computer Vision Center, Barcelona, Spain

July 2020 – Sept 2016 | **B.Sc. in Telecommunications Technologies and Services Engineering**
ETSETB - Universitat Politècnica de Catalunya (UPC), Barcelona, Spain
Majored in audiovisual systems

WORK EXPERIENCE

Current – May 2021 | **Research Intern** at **IRI, CSIC - UPC**, Barcelona, Spain
Dr. Francesc Moreno-Noguer, Perception and Manipulation Group
Exploring Implicit Differentiable Renderer (IDR) in multiview 3D surface reconstruction of human bodies.

Apr 2021 – Oct 2020 | **Research Intern** at **CD6 - UPC**, Barcelona, Spain
Dr. Josep Ramon Casas, Image Processing Group (GPI)
Developed a pipeline to semi-automatically annotate pedestrians in 3D point clouds by exploiting registered and synchronized RGB images and LIDAR point clouds.

July 2020 – Feb 2020 | **Computer Vision Intern** at **Beamagine S.L.**, Barcelona, Spain
Dr. Santiago Royo Royo, CD6 and Beamagine
Designed and implemented a *PointNet++* based architecture to classify pedestrians in LIDAR point clouds using 3D clusters obtained by projecting 2D labels.

Nov 2018 – July 2018 | **SQL Developer** at **Accenture**, Barcelona, Spain
Analyzed and solved problems related to SQL database management.

PROJECTS

Apr 2021 – Feb 2021 | **Video Surveillance for Road Traffic Monitoring** arXiv / code
Solution to the third track of the AI-City Challenge, in which we perform multi-target multi-camera tracking using siamese networks and metric learning.

Apr 2021 – Feb 2021 | **Scene Understanding for Autonomous Driving** arXiv / code
Study of the behaviour of different configurations of RetinaNet, Faster R-CNN and Mask R-CNN (Detectron2) by a qualitative and quantitative evaluation on KITTI-MOTS, MOTSChallenge and out of context datasets.

Feb 2021 – Dec 2020 | **3D Recovery of Urban Scenes** slides / code
3D reconstruction of buildings from a set of images taken from different points of view (frontal images of the façades and aerial images), either using calibrated or uncalibrated cameras (SfM).

Feb 2021 – Dec 2020 | **Image Classification with Classic and Deep Learning Techniques** arXiv / code
Image classifier using both classic computer vision techniques (Bag of Visual Words classifier using SVM) and deep learning techniques (MLPs, InceptionV3 and our own CNN: TinyNet).

Dec 2020 – Oct 2020 | **Museum Painting Retrieval** | arXiv / code

Query by example CBIR system for finding paintings in a museum image collection using color, texture, text and feature descriptors in datasets with different perturbations in the images: noise, overlapping text boxes, color corruption and rotation.

Dec 2020 – Oct 2020 | **Image Restoration and Segmentation with Optimization Techniques** | slides / code

Implement different optimization techniques to solve specific tasks: inpainting, Poisson editing, Chan-Vese segmentation and Markov Random Fields for image segmentation.

July 2020 – Feb 2020 | **Pedestrian Detection in 3D Point Clouds using Deep Neural Networks** | arXiv / slides

Detect pedestrians in RGB images with *YOLOv3*, transfer 2D labels onto the point clouds using projection matrices and train *PointNet++* with the resulting 3D clusters.

Dec 2019 – Sept 2019 | **Ultrasound-Machine Simulator for Medical purposes**

Project proposed by Fetal Medicine Barcelona: ultrasound-machine simulator for medical personnel training purposes using a smartphone to emulate the ultrasound probe and a computer for processing and visualization of DICOM images.

SKILLS

Software: OpenCV, PyTorch, PCL, Detectron2, ROS, Keras
Technical: Python, C++, Matlab, C, Java, SQL, MongoDB, LaTeX
Languages: Spanish, Catalan, English (C1 Advanced)