ROGER MARÍ MOLAS

3D Computer Vision Research Engineer

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EXPERIENCE

Engineering Consultant
Kayrros *(April 2019 – Now)* Paris, France

- Provision of consulting services: expertise and software solutions in the field of 3D reconstruction from optical satellite images.

Computer Vision Researcher
Centre Borelli, ENS Paris-Saclay *(Oct. 2018 – Now)* Paris, France

- Joined the Image Processing Group of Jean-Michel Morel to work on multi-view 3D reconstruction (classic and neural rendering) and the calibration of camera models adapted to satellite images.

Computer Vision Intern
Mapillary *(May 2018 – Aug. 2018)* Barcelona, Spain

- Coded part of a project for camera calibration from a single street-level image and monitored the training of the neural networks employed in it.

Audiovisual Technologies Intern
Eurecat *(Jan. 2017 – July 2017)* Barcelona, Spain

- Contributed to the development of a software for 3D reconstruction from multiple images, designed to be used for small objects or faces.

Part-time Instructor
Acadèmia CEUS *(Jan. 2015 – July 2016)* Barcelona, Spain

- Gave support lessons on "Waves and Electromagnetism" to groups of 10-25 undergraduate students from Pompeu Fabra University.

EDUCATION

Doctor of Philosophy - PhD in Applied Mathematics
Centre Borelli, ENS Paris-Saclay *(2019 - 2022)* Paris, France

- PhD thesis: "Applications of multi-image remote sensing". Started in October 2019 and defended in December 2022. Manuscript available at https://www.theses.fr/2022UPASM045.
- Thesis director: Gabriele Facciolo.
- *Paris Region PhD*[2] doctoral scholarship by Région Île-de-France.

Master's Degree in Computer Vision
Universitat Autònoma de Barcelona (UAB) *(2017- 2018)* Barcelona, Spain

- Overall grade (on a scale of 0 to 10): 9.37. Ranked 1st in the class of 2018.
- Master thesis: "Single Image Camera Calibration using Multi-task Neural Networks" (Grade: 9.9/10).
- Graduated with Honors in 7 subjects (48 ECTS credits out of 60).

Bachelor's Degree in Audiovisual Systems Engineering
Universitat Pompeu Fabra (UPF) *(2013- 2017)* Barcelona, Spain

- Overall grade (on a scale of 0 to 10): 9.43. Ranked 1st in the class of 2017.
- Bachelor thesis: "Multi-view 3D Reconstruction via Depth Map Fusion for a Smartphone Application" (Grade: 10/10).
- Graduated with Honors in 26 subjects (124 ECTS credits out of 240).

ACHIEVEMENTS

Master in Computer Vision 2017 Scholarship for Academic Excellence
Awarded by Catalunya-La Pedrera Foundation to the student with the best academic record that enrolled the master.

Audiovisual Systems Engineering 2017 Extraordinary Award
Awarded by Pompeu Fabra University to the student ranked 1st in the class of 2017.

PUBLICATIONS

López-Antequera, M., Marí, R., Gargallo, P., Kuang, Y., Gonzalez-Jimenez, J., and Haro, G. "Deep Single Image Camera Calibration with Radial Distortion". *CVPR*, 2019.

Marí, R., de Franchis, C., Meinhardt-Llopis, E., and Facciolo, G. "To Bundle Adjust or Not: A Comparison of Relative Geolocation Correction Strategies for Satellite Multi-View Stereo". *ICCV Workshops*, 2019.

Marí, R., de Franchis, C., Meinhardt-Llopis, E., and Facciolo, G. "Automatic Stockpile Volume Monitoring using Multi-view Stereo from SkySat Imagery". *IGARSS*, 2021.

Akiki, R., Marí, R., de Franchis, C., Morel, J.M., and Facciolo, G. "Robust Rational Polynomial Camera Modelling for SAR and Pushbroom Imaging". *IGARSS*, 2021.

Marí, R., de Franchis, C., Meinhardt-Llopis, E., Anger, J. and Facciolo, G. "A Generic Bundle Adjustment Methodology for Indirect RPC Model Refinement of Satellite Imagery". *IPOL*, 2021.

Marí, R., Ehret, T., Anger, J., de Franchis, C., and Facciolo, G. "L1B+: A Perfect Sensor Localization Model for Simple Satellite Stereo Reconstruction from Push-Frame Image Strips". *ISPRS Annals*, 2022.

Marí, R., Facciolo, G, and Ehret, T. "Sat-NeRF: Learning Multi-View Satellite Photogrammetry With Transient Objects and Shadow Modeling Using RPC Cameras". *CVPR Workshops*, 2022.

Marí, R., Ehret, T and Facciolo, G. "Disparity Estimation Networks for Aerial and High-Resolution Satellite Images: A Review". *IPOL*, 2022.

SKILLS

Languages

- Catalan/Spanish. Native proficiency.
- English. Full professional proficiency.
- French/Italian. Professional proficiency.

Programming

- Python, Matlab. Advanced level.
- C, C++. Intermediate level.

INTERESTS

Computer Vision | Image Processing | 3D Reconstruction | Remote Sensing | Neural Rendering | Camera Calibration

Last update: January 2023