

EDGAR RIBA

Education	UNIVERSITAT AUTONOMA DE BARCELONA	Barcelona, Spain
	10/2015–now	
	Ph.D. in Computer Science Dissertation: <i>Geometric Computer Vision using deep nets.</i> Advisor: Daniel Ponsa. Research Topics: Deep Learning, Local Features, Camera Pose and depth estimation.	
	UNIVERSITAT POLITECNICA DE CATALUNYA	Barcelona, Spain
	07/2012–06/2015	
	M.S. in Automatic Control and Robotics. Dissertation: <i>Implementation of a 3D pose estimation algorithm.</i> Advisors: Adrian Penate and Francesc Moreno-Noguer.	
	UNIVERSITAT POLITECNICA DE CATALUNYA	Barcelona, Spain
	07/2008–06/2012	
	B.S. in Geomatic and Surveying Engineering.	

Work Experience

OSVF/OPENCV.ORG	
04/2018–now	
Member of the Board of the OpenCV library fundation	
<ul style="list-style-type: none">• representing the OpenCV library in public events to advertise the Open Computer Vision framework.• organizing and mentoring collaboration projects (e.g. during Google Summer of Code).	
ARRAIY, INC.	Barcelona, Spain.
11/2017–06/2019	
PhD candidate and Research Engineering Intern	
<ul style="list-style-type: none">• leading the Open Source team of the company.• maintainance and development of the Kornia open source project.• remotely working on research for depth estimation with deep nets and 3D geometric computer vision for VFX content generation.	
ARRAIY, INC.	Palo Alto, CA, USA.
05/2017–10/2017	
Research Engineering Intern, Geometry group	
<ul style="list-style-type: none">• developed and integrated an internal framework for differential 3D geometry using deep nets.	
COMPUTER VISION CENTER	Barcelona, Spain
10/2015–05/2017	
PhD candidate, MultiSpectral Image Analysis and Understanding group	
<ul style="list-style-type: none">• worked on deep learning applied to local features.• holder of the trainee research staff grant in the CS department at the Universitat Autònoma de Barcelona.	

OPENCV online
05/2016–08/2016

Intern, Google Summer of Code

- integrated tiny-dnn to OpenCV contrib by adding a wrapper to the caffe converter.
- fixed bugs in tiny-dnn and developed several new features such as GPU support via OpenCL and NNPACK optimizations.

OPENCV online
05/2015–08/2015

Intern, Google Summer of Code

- developed the Structure From Motion module using a customized version of Libmv.

ALDEBARAN ROBOTICS Paris, France
02/2015–06/2015

Intern Software Engineer, Perception team

- designed and implemented an algorithm for people detection and tracking by sensor fusion using ROS, OpenCV and C++.

OPENCV online
05/2014–08/2014

Intern, Google Summer of Code

- designed and implemented a real time pose estimation algorithm for textured objects.
- implemented the PnP method: *A direct least-squares* (DLS) in the calib3d module.
- contributed with a tutorial for the calib3d module.

INSTITUT DE ROBOTICA I INFORMATICA INDUSTRIAL (CSIC-UPC) Barcelona, Spain
05/2014–08/2014

Research Assistant, Perception and Manipulation group

- worked on my masters thesis in geometric computer vision.

Teaching Experience

UNIVERSITAT AUTONOMA DE BARCELONA Barcelona, Spain
102708, *Software Engineering Fundamentals*, Spring 2018: Associate Professor

UNIVERSITAT AUTONOMA DE BARCELONA Barcelona, Spain
102708, *Software Engineering Fundamentals*, Spring 2017: Teaching Assistant

UNIVERSITAT POLITECNICA DE CATALUNYA Barcelona, Spain
310209, *Electromagnetism and Optics*, Fall 2007: Teaching Assistant
310209, *Electromagnetism and Optics*, Spring 2007: Teaching Assistant

Professional Activities

Student of Google Summer of Code mentor in OpenCV from 2014 to 2017.

Mentor of Google Summer of Code mentor in OpenCV from 2018.

Member of the board of the official OpenCV foundation.

Creator of the Open Source Differentiable Computer Vision Library www.kornia.org. Maintenance and development from 2017.

Maintainer/developer of the *tiny-dnn* library from 2016 to 2018.

Contributed in many Open Source projects such as OpenCV, kornia, tiny-dnn, Pytorch, ROS, Object Recognition Kitchen, OpenDroneMap and OpenSfM.

Participated in robotics competitions and campus such as the HUMABOT Robot Competition 2014 during the *IEEE-RAS International Conference on Humanoid Robots* (Madrid, Spain) and the RoCKIn Camp 2014 organized by La Sapienza University of Rome (Rome, Italy) within the company PAL Robotics.

Co-founder and member of the *La Konfraria de la Vila del Pingui*. An Open Source community, organizing local events and workshops spreading the free software culture.

Skills Competence: Computer Vision (local features, camera pose estimation), Deep Learning, Robotics, Programming, Open Source.
Programming Languages: Python, C++.
Programming Libraries: Pytorch, OpenCV, kornia, ROS.
Extra Interests: Git, Docker, Vim, CMake, Unix.
Languages: Catalan (native), Spanish (native), English (professional)

Software *kornia*: Open Source Differentiable Computer Vision Library in PyTorch.
tiny-dnn: header only, dependency-free deep learning framework in C++11.

Papers in Reviewed Proceedings

V. Balntas, E. Riba, D. Ponsa, K. Mikolajczyk, “Learning local feature descriptors with triplets and shallow convolutional neural networks”, **BMVC**, 2016.

A. Barroso, E. Riba, D. Ponsa, K. Mikolajczyk, “Key.Net: Keypoint Detection by Hand-crafted and Learned CNN Filters”, **arXiv:1904.00889**, 2019.

Relevant Coursework

- *Object Detection* (Free online course, Universitat Autònoma de Barcelona. Fall 2015)
- *Machine Learning* (Free online course, Stanford. Fall 2014)
- *Introduction to Robot Operating System (ROS)* (Universitat Politècnica de Catalunya. Spring 2014)

References **Dr. Gary Bradski**
OSVF/OpenCV.org
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Dr. Daniel Ponsa
Computer Vision Center, Universitat Autònoma de Barcelona.
daniel@cvc.uab.es

Dr. Francesc Moreno-Noguer
Institut de Robotica i Informàtica Industrial (CSIC-UPC)
fmoreno@iri.upc.edu

Dr. Vincent Rabaud
Google, Inc.
vincent.rabaud@gmail.com