Sergi Caelles

Curriculum Vitae

✉ scaelles@gmail.com
🖈 sergicaelles.com

Education

2017 **Computer Vision Summer School**,
Lectures from world-renowned experts,
International Computer Vision Summer School (ICVSS).

2016–2020 **PhD in Computer Vision**,
Advisor: Prof. Luc Van Gool,
Computer Vision Lab,
Eidgenössische Technische Hochschule Zürich (ETH Zürich).

2014–2016 **Master in Telecommunication Engineering**,
Technical School of Telecommunication Superior Engineering of Barcelona (ETSETB),
Technical University of Catalonia (UPC),
Current mark: 9.38/10. Ranked 2nd out of 26.

2010–2014 **Degree in Science and Telecommunication Technologies Engineering**,
Technical School of Telecommunication Superior Engineering of Barcelona (ETSETB),
Technical University of Catalonia (UPC),
Final mark: 8.95/10. Ranked 1st out of 56.

Working experience

July 2018 – Nov. 2018 **Research internship**, *AR/VR team*, Facebook.
Explored the importance of attribute annotation in images for segmentation.

Sep. 2015 – Feb. 2016 **Research scholarship**, *Institut de Robòtica i Informàtica Industrial*, CSIC-UPC.
Integrated the current planning software (CuikSuite) into ROS.

Jan. 2015 – July 2015 **Teaching assistant**, *Department of Applied Physics*, ETSETB-UPC.
Assisted the students in the laboratory, updated the problem set and converted it into LaTeX.

March 2014– Sep. 2014 **Internship**, *Department of Optical Transmission and Networks Research*, Bell Laboratories.
Contributed in the development of the first real-time transmission experiment over a 60-km-long fiber supporting six coupled spatial and polarization modes.

Projects

Feb. 2016 – Aug. 2016 **Master thesis**, *Object segmentation in video sequences*, Computer Vision Lab, ETH Zürich.
In this project, the possibility of using the shape of the objects to improve object segmentation algorithms in video sequences is explored.

Sep. 2015 – Jan. 2016 **CBI@CERN**, *Well2Go*, ETSETB-UPC.
Multidisciplinary project carried out in collaboration with ESADE and IED students. Our solution, a sensor network able to detect the state of the wells in developing countries, bringing real time information to a platform to ensure their maintenance, was the winner of the CBI Mediterranean 2015.

May 2015 – Aug. 2015 **Google Summer of Code**, *Run-time partitioning of functions at an embedded SDR framework*.
The main goal of this project was implementing an embedded Linux application in order to make a flexible use of the software and hardware parts of the FPGA-based System-On-Chip (SoC) architecture to develop function splitting in run time.

March 2014 – July 2014	**Bachelor thesis**, *Implementation of DSP algorithms in VHDL for high-speed optical communications*, Bell Laboratories.
	The algorithms that were developed are a digital phase shifter in order to interpolate digital signals, a parallelized implementation of the discrete Fourier transform and a frequency domain equalizer. These are the first steps for the final implementation of a complete real time MIMO receiver.
Sep. 2009 – Oct. 2010	**High school project**, *Organization and control of everyday life in an institute*.
	Implementation of a platform using a database managed with PHP to ease the professors the daily life tasks in an institute.

Honors and Awards

Oct. 2015	**Master Scholarship**, *Catalunya-La Pedrera Foundation*.
	Scholarship granted to the best students of different master programs taught in Catalonia with an amount of 10.000 euros.
April 2015	**Best student of the Telecommunication degrees**, *ETSETB-UPC*.
	Best academic records among the different Telecommunication degrees offered by ETSETB: Science and Telecommunication Technologies, Electronic Systems, Telecommunication Systems, Audiovisual Systems and Telematics.
Oct. 2010	**Prize in new technologies to improve accessibility**, *XV Premio San Viator de investigación en Ciencias y humanidades*, San Viator school of Madrid.
	For the project "Organization and control of everyday life in an institute" with an amount of 1.000 euros.
Oct. 2010	**Second prize**, *XXIII Certamen Jóvenes Investigadores*, Spanish Ministry of Education.
	For the project "Organization and control of everyday life in an institute" with an amount of 3.000 euros.
June 2010	**Second prize**, *Premis Igualada recerca jove*, Escola Universitària d'Enginyeria Tècnica Industrial de Igualada.
	For the project "Organization and control of everyday life in an institute" with an amount of 400 euros.

Personal and technical skills

Languages	English (fluent), Spanish (native), Catalan (native)
Programming	Python, MATLAB, LaTeX, Java, VHDL
Deep learning	PyTorch, Tensorflow, Caffe
Reviewer	CVPR, T-PAMI
Co-Organizer	DAVIS Challenge Workshop (CVPR 2017, CVPR 2018)

Publications

S. Caelles*, K.-K. Maninis*, J. Pont-Tuset, L. Leal-Taixé, D. Cremers, and L. Van Gool. One-shot video object segmentation. In *Computer Vision and Pattern Recognition (CVPR)*, 2017.

S. Caelles, A. Montes, K.-K. Maninis, Y. Chen, L. Van Gool, F. Perazzi, and J. Pont-Tuset. The 2018 davis challenge on video object segmentation. *arXiv:1803.00557*, 2018.

K.-K. Maninis*, S. Caelles*, Y. Chen, J. Pont-Tuset, L. Leal-Taixé, D. Cremers, and L. Van Gool. Video object segmentation without temporal information. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2018.

K.-K. Maninis*, S. Caelles*, J. Pont-Tuset, and L. Van Gool. Deep extreme cut: From extreme points to object segmentation. In *Computer Vision and Pattern Recognition (CVPR)*, 2018.

J. Pont-Tuset, F. Perazzi, S. Caelles, P. Arbeláez, A. Sorkine-Hornung, and L. Van Gool. The 2017 davis challenge on video object segmentation. *arXiv:1704.00675*, 2017.

C. Ventura, J. Pont-Tuset, S. Caelles, Y. Chen, K.-K. Maninis, and L. Van Gool. Iterative deep learning for road topology extraction. *British Machine Vision Conference (BMVC)*, 2018.