Alberto **Montes**

COMPUTER SCIENCE STUDENT

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"The best way to predict your future is to create it."

Education

Master in Computer Science	*Zürich, Switzerland*
SWISS FEDERAL INSTITUTE OF TECHNOLOGY (ETHZ)	*Sep. 2016 - Present*

Specialization in Computer Vision and Machine Learning/AI

Bachelor in Science and Technology in Telecommunications	*Barcelona, Spain*
POLYTECHNIC UNIVERSITY OF CATALONIA	*Sep. 2011 - Jul. 2016*

GPA – 9.0/10

Bachelor of Engineering in Industrial Technologies	*Barcelona, Spain*
POLYTECHNIC UNIVERSITY OF CATALONIA	*Sep. 2011 - Jul. 2016*

GPA – 8.7/10

Experience

Backend Engineer	*Barcelona, Spain*
VERSE TECHNOLOGIES	*Oct. 2015 - Jul. 2016*

- Implemented RESTful API server for easy to send money mobile application (Verse in Apple App Store and Google Play Store).
- Built and deploy infrastructure using Docker containers.
- Writed unit tests over the codebase.
- Developed a Payment module which integrates with RedSys (a Payment Gateway in Spain).
- Worked on multiple tasks like async task scheduling, automatic email composition, code profiling, robust web robots.

OpenDaylight Project	*San Francisco, USA*
SUMMER INTERN	*Jun. 2015 - Sep. 2015*

- Implemented a GUI that simplifies provisioning, programming, and visualization of network overlays using the LISP Flow Mapping service from Cisco in the SDN open source project OpenDaylight.
- Invited to attend the OpenDaylight Summit 2015 in Santa Clara (USA) with all the expenses covered.

Research

Temporal Activity Detection in Untrimmed Videos with Recurrent Neural Networks	*Barcelona, Spain*
BACHELOR THESIS	*Feb. 2016 - Jul. 2016*

- The thesis explores the use of Convolutional Neural Networks and Recurrent Neural Networks to classify activities in videos and temporally localize this activities.
- Participated in *ActivityNet Large Scale Activity Recognition Challenge* at CVPR 2016.
- The work was presented at *NIPS 2016 Workshop LSCVS* winning the *Best Poster* award. Project Link

Video Object Segmentation	*Zürich, Switzerland*
MASTER THESIS AT COMPUTER VISION LAB ETHZ	*Jul. 2017 - Present*

- The thesis explores interaction between the point regression techniques and the dense prediction techniques, specifically in the field of video object segmentation.
- Developed a web interface for interactive video object segmentation in real time. In addition can be used to visualize segmentation results.

Publications

2016	**A. Montes**, A. Salvador, S. Pascual, and X. Giro-i-Nieto. Temporal Activity Detection in Untrimmed Videos with Recurrent Neural Networks. In *arXiv:1608.08128*	*UPC, Barcelona*

Projects

EXTERNAL PROJECTS

TeleForm	*Barcelona, Spain*
DEVELOPER	*Jul. 2016*

A project developed for the Typeform Summer Hackathon. The project consisted of developing a Telegram Bot which implemented forms using the TypeForm IO API. The project was awarded the *Most Creative* implementation idea by the engineers from TypeForm. [Code]

School-Related Projects

Fast 2D N^2 t-distributed Stochastic Neighbor Embedding　　　　　　*ETH Zürich, Switzerland*

Researcher　　　　　　　　　　　　　　　　　　　　　　　　　　　　*Feb. 2017 - Jun. 2017*

The project presents a faster implementation of the N^2 t-SNE embedding. This version is restricted to producing 2D output vectors and has been developed for CPU architectures supporting AVX2 instructions. It also analyses performance blockers and elevate them by increasing locality and hand-optimizing the code. The project implementation yields the fastest implementation known to the t-SNE authors. The project was performed in teams for the course *How to Write Fast Numerical Code* at ETHZ. [Code]

RADiCal (Radar Technologies for Smart Cities)　　　　　　　　　*UPC Barcelona, Spain*

Processing Team Leader　　　　　　　　　　　　　　　　　　　　　*Feb. 2015 - Jun. 2015*

The project was done by a group of 20 engineering students in the design and development of a radar-based system for monitoring and surveilling traffic conditions, pedestrian density and parking availability in a city. The project was part of a university semester course with an on-site dedication of 8 hours per week. My role in this project was the Team Leader of the Processing Team responsible for the signal processing and the server infrastructure to manage all the data gathered by the radar.

Project Lightning Streaming　　　　　　　　　　　　　　　　　　*UPC Barcelon, Spain*

Developer　　　　　　　　　　　　　　　　　　　　　　　　　　　*Feb. 2013 - Jun. 2013*

University course project performed in teams. The goal of the project was the creation of an app for Android which could be able to connect to a server and watch videos in streaming using HTTP Live Streaming protocol. [Code]

Electromagnetism and Magnetic Levitation　　　　　　　　　　　*Barcelona, Spain*

Researcher　　　　　　　　　　　　　　　　　　　　　　　　　　　*Sep. 2010 - Feb. 2011*

High school research project. The project consisted of studying the magnetic levitation using Foucault currents performing some experimentation and mathematical analysis. It was given the highest grade as well as an award by the Catalan Government.

Honors & Awards

International

2016	**Best Poster Award**, Workshop on Large Scale Computer Vision Systems at NIPS	*Barcelona, Spain*

Domestic

2015	**Most Creative Implementation Idea**, TypeForm Summer Hackathon	*Barcelona, Spain*
2013	**Winner**, Best Academic Record by EVERIS	*Barcelona, Spain*
2011	**Winner**, Premis Recerca Jove (Young Research Awards) by the Catalan Government	*Barcelona, Spain*

Skills

Programming	Python, Java, Matlab, C/C++, R, SQL, LaTeX
Numeric & ML Libraries	NumPy, Scikit-Learn, TensorFlow, PyTorch, OpenCV, Pandas
Web	HTML5, JavaScript, CSS, Django, Flask
Other	Git, Docker, nginx
Languages	Spanish, Catalan, English, German (Basic Knowledge)