



# Andrés Romero

Doctor in Engineering

## Cover Letter

### Location

Zürich, Switzerland

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My interests are on the field of artificial intelligence and computer vision, particularly in image/video manipulations. My PhD research was focused on generative adversarial networks, deep learning and automated facial expression recognition and, more broadly, on affective computing. With the guidance of Prof. Pablo Arbelaez, we were awarded three consecutive times by the Google Research Awards for Latin America with our project "Learning Dynamic Action Units for Three-dimensional Facial Expression Recognition".

I am particularly interested in leveraging deep learning techniques, generative adversarial networks, and visual reasoning for a better image or video enhancement/analysis/manipulation. Notably, my last project dealt with the stochasticity associated with image-to-image translation domains for multiple attributes *e.g.*, transforming an image of an angry middle-aged person with sunglasses into a smiling young person without sunglasses, all this using a single model that encode all attributes such as: age, emotion and sunglasses.

Furthermore, within my research I aim at pushing the boundaries of image-to-image translation methods in order to develop cutting-edge techniques that include not only still images but video and natural language processing.

## Experience

- 09/19 - Now **Posdoctoral Researcher** [ETH Zürich, Switzerland](#)  
Computer Vision Lab (CVL), working with Prof. Luc Van Gool and Dr. Radu Timofte.
- 02/19 - 12/19 **Computer Vision Consultant** [Centro Nacional de Consultoria \(CNC\), Bogotá, Colombia](#)  
Support for the Computer Vision team.
- 01/19 - 07/19 **Doctoral Teaching Assistant** [Universidad de Los Andes, Bogotá, Colombia](#)  
Laboratory instructor for graduate students: Computer vision. 22 students.
- 07/18 - 12/18 **Academic Research Guest** [ETH Zürich, Switzerland](#)  
Computer Vision Lab - Under the guidance of Prof. Radu Timofte.
- 01/18 - 06/18 **Doctoral Teaching Assistant** [Universidad de Los Andes, Bogotá, Colombia](#)  
Laboratory instructor for graduate students: Computer vision. 24 students.
- 01/16 - 06/16 **Graduate Research Assistant** [Universidad de Los Andes, Bogotá, Colombia](#)  
Project on Facial Action Unit Detection with Convolutional Neural Networks.
- 07/14 - 12/15 **Graduate Teaching Assistant** [Universidad de Los Andes, Bogotá, Colombia](#)  
Laboratory instructor of Image processing. 80 students.  
Laboratory instructor of Signal processing. 65 students.  
Laboratory instructor of Bio-instrumentation. 40 students.  
Laboratory instructor of Scientific programming. 40 students.



## Programming Skills

Python ★★★★★  
Matlab ★★★★★  
C/C++ ★★★★★

## Deep Learning Frameworks

PyTorch ★★★★★  
TensorFlow ★★★★★  
Caffe ★★★★★

## OS Skills

GNU/Linux ★★★★★  
MacOS ★★★★★  
Windows ★★★★★

## Languages

Spanish ★★★★★  
English ★★★★★  
Portuguese ★★★★★  
German ★★★★★

## Education

- 2016 - 2019 **PhD in Engineering** Universidad de los Andes, Colombia  
Computer Vision  
Main Subjects: Generative Adversarial Networks, Deep Learning, Facial Expression Recognition.  
*Thesis: "Beyond Facial Expression Recognition: Simultaneous Generation and Classification of Facial Micro-Expressions in the Wild".*  
*Advisor: Prof. Pablo Arbeláez.*
- 2014 - 2016 **MSc in Biomedical Engineering** Universidad de Los Andes, Colombia  
Computer Vision.  
Main Subjects: Affective Computing, Facial Expression Recognition, Deep Learning, Machine Learning.  
*Thesis: "Facial Action Unit Detection with Convolutional Neural Networks".*  
*Advisor: Prof. Pablo Arbeláez.*
- 2007 - 2013 **BSc in BioEngineering** Universidad de Antioquia, Colombia  
Main subjects: Clinical Engineering, Digital and Analogical Electronic.

## Awards

- 08/2017 **Google's Research Awards for Latin America** Machine Learning  
Extension
- 08/2016 **Google's Research Awards for Latin America** Machine Learning  
Extension
- 09/2015 **Google's Research Awards for Latin America** Machine Learning  
*Project proposal: "Learning Dynamic Action Units for Three-Dimensional Facial Expression Recognition"*

## Publications

- Romero, A., Arbeláez, P., Van Gool, L., & Timofte, R. (2019)  
**SMIT: Stochastic Multi-Label Image-to-Image Translation.**  
*International Conference on Computer Vision (ICCV), Workshops.*
- Romero, A., León, J., & Arbeláez, P. (2018)  
**Multi-View Dynamic Facial Action Unit Detection.**  
*Image and Vision Computing.*
- Romero, A., & Castilla, A. (2016)  
**Real-time detection of the open/closed state of eyes based on Android,**  
*Proceedings of the 8th International Seminar on Biomedical Engineering (SIB 2016), Bogotá, Colombia, Abril 20-22, 2016*
- Romero, A. (2016)  
**Emotion recognition via deep learning.**  
*Proceedings of the 8th International Seminar on Biomedical Engineering (SIB 2016), Bogotá, Colombia, Abril 20-22, 2016*

*Andrés Felipe Romero Vergara*