



Andrés Romero

Doctor in Engineering

Cover Letter

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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. I am particularly interested in facial analysis, and problems involving automated facial understanding.

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

Google Scholar (February 2021):

<https://scholar.google.com/citations?user=k4m3LGIAAAAJ>

Andrés Romero FOLLOW GET MY OWN PROFILE

Position: ETH Zürich
 Verified email at ethz.ch - [Homepage](#)
 Computer Vision Image Manipulation Image Enhancement Video Manipulation

TITLE	CITED BY	YEAR
Smit: Stochastic multi-label image-to-image translation A Romero, P Arbeláez, L Van Gool, R Timofte Proceedings of the IEEE/CVF International Conference on Computer Vision ...	30	2019
AIM 2020 challenge on image extreme inpainting E Navasle, A Romero, S Bigazzi, R Timofte, Z Hu, X Wang, X Gao, C Shin, ... European Conference on Computer Vision, 716-741	11	2020
Multi-view dynamic facial action unit detection A Romero, J León, P Arbeláez Image and Vision Computing, 103723	11	2018
Sesame: Semantic editing of scenes by adding, manipulating or erasing objects E Navasle, A Romero, I Kantaris, L Van Gool, R Timofte European Conference on Computer Vision, 384-411	6	2020
Deepsee: deep disentangled semantic explorative extreme super-resolution MC Buhler, A Romero, R Timofte Proceedings of the Asian Conference on Computer Vision	4	2020
Zero-Pair Image to Image Translation using Domain Conditional Normalization S Shukla, A Romero, L Van Gool, R Timofte Proceedings of the IEEE/CVF Winter Conference on Applications of Computer ...	2021	
Unsupervised Multimodal Video-to-Video Translation via Self-Supervised Learning K Liu, S Gu, A Romero, R Timofte Proceedings of the IEEE/CVF Winter Conference on Applications of Computer ...	2021	
Self-Supervised Shadow Removal FA Valadouni, A Romero, L Van Gool, R Timofte arXiv preprint arXiv:2010.11619	2020	
SMILE: Semantically-guided Multi-attribute Image and Layout Editing A Romero, L Van Gool, R Timofte arXiv preprint arXiv:2010.02315	2020	
UltraGAN: Ultrasound Enhancement Through Adversarial Generation M Escobar, A Castillo, A Romero, P Arbeláez International Workshop on Simulation and Synthesis in Medical Imaging, 120-130	2020	

Cited by

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Co-authors

- Radu Timofte** ETH Zürich (previously at KU Le...
- Luc Van Gool** professor computer vision ETH Z...
- Pablo Arbeláez** Universidad de los Andes, Colo...
- Evangelos Navasle** PhD Student, ETH Zurich & CSE...
- Marcel C. Buehler** ETH Zürich
- Angela Castillo** PhD student, Universidad de los ...
- Maria C. Escobar** M.Sc. Student of Biomedical Eng...