JUAN CAMILO PÉREZ

LINK TO HOMEPAGE

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PROFILE

Ph.D. student in Computer Science at *KAUST* (Saudi Arabia) and *Universidad de los Andes* (Colombia), under the supervision of Professors Bernard Ghanem and Pablo Arbeláez. My research focuses on the robustness of Deep Learning-based Computer Vision systems. In particular, I am interested in the vulnerabilities of these systems: understanding and fixing them, and pondering on how to leverage these vulnerabilities for other purposes. Recently, I have studied how generative models inherently learn semantics, and how we can exploit the representations learnt by generative models to understand more complex systems.

EXPERIENCE

Intern at the Visiting Student Research Program; KAUST — May'2020-Dec'2020

Research on the adversarial robustness of Deep Learning. Supervised by Professor Bernard Ghanem.

Graduate Research Assistant; Universidad de los Andes — Aug'2019-Jun'2020

Research on harnessing Deep Learning for *(1)* image segmentation based on natural language, and *(2)* adversarial robustness. Supervised by Professor Pablo Arbeláez.

Machine Learning Engineer; Tecnología y Gerencia SAS — Jul'2017-Jan'2020

Leading engineer in charge of the design and implementation of a Machine Learning system for one of Colombia's largest banks.

Graduate Research Assistant; Universidad de los Andes — Aug'2017-Jul'2019

Research on enhancing the diagnosis and attention provided to strokes in Colombia, sponsored by a *Colciencias*' grant. Worked on data handling and web development. Supervised by Professor Antonio Salazar.

EDUCATION

Universidad de los Andes — B.Sc. *Cum Laude* in Biomedical Eng., 2017.
Universidad de los Andes — M.Sc. Biomedical Eng., 2019.
KAUST/Universidad de los Andes — Ph.D. Computer Science, *current*

LANGUAGES

— Spanish (native)
— English (112/120 TOEFL iBT score)

ACADEMIC ACHIEVEMENTS

— Two-times winner of the Academic Excellence Scholarship offered by *Uniandinos* (*Universidad de los Andes*' Alumni Association): 2016 and 2017.
— Best *Saber Pro* Country-wide test score in Engineering in 2016.
— Outstanding reviewer: CVPR 2019, CVPR 2020, NeurIPS 2020, CVPR 2021, ICCV 2021.

PUBLICATIONS

— Dynamic Multimodal Instance Segmentation Guided by Natural Language Queries. **ECCV 2018**, Munich, Germany.
— Design of a Telestroke System to Optimize Healthcare Delivery for Cerebrovascular Diseases in Colombia. **eTELEMED 2019,** Athens, Greece.
— Gabor Layers Enhance Network Robustness. **ECCV 2020**, Glasgow, United Kingdom (virtual).
— Comprehensive telestroke network to optimize health care delivery for cerebrovascular diseases: Algorithm development. **JMIR 2020.**
— Towards Robust General Medical Image Segmentation. **MICCAI 2021**, Strasbourg, France (virtual).
— A Hierarchical Assessment of Adversarial Severity. **ICCV Workshop 2021**, Montreal, Canada (virtual). *Best paper award*.
— Enhancing Adversarial Robustness via Test-time Transformation Ensembling. **ICCV Workshop 2021**, Montreal, Canada (virtual).
— Generalized Real-World Super-Resolution through Adversarial Robustness. **ICCV Workshop 2021**, Montreal, Canada (virtual).
— Rethinking Clustering for Robustness. **BMVC 2021**, virtual.
— Combating Adversaries with Anti-Adversaries. **AAAI 2022**, Vancouver, Canada (virtual).

COURSERA COURSES

— Mathematical Thinking in Computer Science, Nov. 2020.
— Combinatorics and Probability, Nov. 2020.
— Introduction to Graph Theory, Dec. 2020.