Maria Escobar

Webpage | Email | Linkedin | Github | Google Scholar

PROFESSIONAL SUMMARY

I am a PhD candidate in Engineering and a researcher at the Center for Research and Formation in Artificial Intelligence (CINFONIA) at Universidad de Los Andes in Bogotá, Colombia. My main interests include Computer Vision and Deep Learning, as well as their role in human understanding through embodied AI. I am currently working on egocentric vision for 3D analysis and human pose estimation.

EDUCATION

PhD., Engineering, Universidad de los Andes *2021-*
Expected graduation date: March 2025

MSc., Biomedical Engineering, Universidad de los Andes *2019-2020*
Thesis: Generative Adversarial Networks for Robust Medical Image Analysis.

BSc., Biomedical Engineering, Universidad de los Andes *2015-2018*
Minor: German Language and culture.

AWARDS

- 2nd place in Visual Queries 3D Localization for Ego4D Challenges @ CVPR (2023)
- 2nd place in PNR Temporal Localization and 3rd place in Object State Change Classification for Ego4D CVPR Challenges @ CVPR (2022)
- Best GPA of graduating cohort of BME Students (2019).
- First place in the graduate national exams for BME. Seventh place nationwide (2018).

PUBLICATIONS

- Ego-Exo4D: Understanding Skilled Human Activity from First- and Third-Person Perspectives. K. Grauman et al. Arxiv, 2023.
- BoDiffusion: Diffusing Sparse Observations for Full-Body Human Motion Synthesis. A. Castillo*, **M. Escobar***, G. Jeanneret, A. Pumarola, P. Arbeláez, A. Thabet, A. Sanakoyeu. Computer Vision for Metaverse workshop at ICCV 2023.
- EgoCOL: Egocentric Camera pose estimation for Open-world 3D object Localization@ Ego4D challenge 2023. C Forigua, **M Escobar**, J Pont-Tuset, KK Maninis, P Arbeláez. Arxiv, 2023.
- SuperFormer: Volumetric Transformer Architectures for MRI Super-Resolution. C. Forigua, **M. Escobar**, P. Arbeláez. Simulation and Synthesis workshop at the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2022.
- Video Swin Transformers for Egocentric Video Understanding @ Ego4D Challenges 2022. **M. Escobar***, L. Daza*, C. González, J. Pont-tuset, P. Arbeláez. Arxiv, 2022.
- Smart pooling: AI-powered COVID-19 informative group testing. **M. Escobar**, G. Jeanneret, L. Bravo-Sánchez, et al. Scientific Reports, 2022.
- Generalized Real-World Super-Resolution through Adversarial Robustness. A. Castillo*, **M. Escobar***, A. Romero, R. Timofte, L. Van Gool, P. Arbeláez. Advances in Image Manipulation (AIM) Workshop at ICCV, 2021.
- SIMBA: Specific Identity Markers for Bone Age Assessment. C. González*, **M. Escobar***, L. Daza, F. Torres, G. Triana, and P. Arbeláez. International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2020.
- LUCAS: LUng CAncer Screening with Multimodal Biomarkers. L. Daza, A. Castillo, **M. Escobar**, and P. Arbeláez. Multimodal Learning for Clinical Decision Support workshop at the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2020.
- UltraGAN: Ultrasound Enhancement Through Adversarial Generation. **M. Escobar***, A. Castillo*, A. Romero and P. Arbeláez. Simulation and Synthesis workshop at the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2020.

· Hand Pose Estimation for Pediatric Bone Age Assessment. **M. Escobar**[*], C. González [*], F. Torres, L. Daza, G. Triana and P. Arbeláez. International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2019 Oral presentation.
· An empirical study on Global Bone Age Assessment. F. Torres , C. González, **M. Escobar**, L. Daza, G. Triana and P. Arbeláez. International Symposium on Medical Information Processing and Analysis, 2019.

[*] denotes equal contribution.

PROFESSIONAL EXPERIENCE

Graduate Research Assistant - Universidad de los Andes *Aug, 2018 - Present*
· Member of the Biomedical Computer Vision (BCV) group at Uniandes led by Prof. Pablo Arbeláez.
· Working on multidisciplinary teams to conduct research projects.
· Writing paper submissions for international conferences.
· Creating research projects and writing grant proposals.

Graduate Teaching Assistant - Analysis and Processing of Biomedical Images *Jan, 2019 - Aug, 2019*
· Laboratory instructor - 50 students in charge.

Undergraduate Teaching Assistant - Universidad de los Andes *Aug, 2016 - May, 2018*
· Courses: Quantitative physiology I and II, Probability and statistics, Algorithmic and Object-Oriented Programming.

RESEARCH

Egocentric Video understanding *Jan, 2022*
· Dataset and methods for egocentric vision understanding.
· Role: Team leader at Uniandes.

Smart Pooling *March, 2020*
· AI tool to enhance COVID-19 PCR molecular testing.
· Role: Team leader.

Congenital Heart Defect detection *Jan, 2020*
· Method for early diagnosis of congenital heart defects in Colombia.
· Role: Team Leader.

Image and video generation *Jan, 2019*
· Generative Adversarial Networks for diverse applications.
· Role: Team co-leader.

Bone Age Assessment *Aug, 2018*
· Deep Learning model to predict Bone Age based on hand radiographs.
· Role: Team co-leader.

SKILLS

Programming: Python, PyTorch, Matlab, and LaTeX

Languages: Spanish (Native), English (C2), German (B1).

COMMUNITY SERVICE

Volunteer reviewer *2019 - Present*
I am a volunteer reviewer for the conferences CVPR, ECCV, ICCV and MICCAI and for the journals TPAMI and IJCV.

Organizing committee SASHIMI 2022 *2021 - 2022*
I was part of the organizing committee for the Simulation and Synthesis workshop at the International Conference on Medical Image Computing and Computer Assisted Intervention of 2022.