

# Maria Camila Escobar

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## EDUCATION

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- PhD., Engineering**, Universidad de los Andes 2021-
- 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

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- Best GPA among 45 graduating BME Students (2019).
- Member of the Colombian Talent Program (Programa Semillero de Talentos) created by Colfuturo to provide guidance and scholarships to top students in Colombia (2019).
- First place in the graduate national exams for BME. Seventh place nationwide (2018).
- Coulter College Design Scholar (2018).

## PUBLICATIONS

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- Smart Pooling: AI-powered COVID-19 testing. **M. Escobar**, G. Jeanneret, L. Bravo-Sánchez, et al. medRxiv, 2020.
- 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.
- 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

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- 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.
  - Applying computer science skills in biomedical imaging problems.
  - 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.
  - Designing and grading laboratory guides.
  - Assisting and evaluating students in final course projects.

**Undergraduate Teaching Assistan** - Universidad de los Andes*Aug, 2016 - May, 2018*

- Courses: Quantitative physiology I and II, Probability and statistics, Algorithmic and Object-Oriented Programming.
- Designing interactive material for lectures.
- Designing and grading midterms.
- Modifying laboratory guides.
- Assisting students during midterms and lab sessions.
- Grading lab guides and homework.

**RESEARCH**

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**Smart Pooling***March, 2020*

- AI tool to enhance COVID-19 PCR molecular testing.
- Rol: Team leader.

**DELFOF***Jan, 2020*

- Method for early diagnosis of congenital heart defects in Colombia.
- Rol: Team Leader.

**Lung Cancer Diagnosis***Nov, 2019*

- Deep Learning model for early detection of Lung Cancer based on CAT scans and medical reports.
- Rol: Research assistant.

**Image and video generation***Jan, 2019*

- Generative Adversarial Networks for diverse applications.
- Rol: Team co-leader.

**Bone Age Assessment***Aug, 2018*

- Deep Learning model to predict Bone Age based on hand radiographs.
- Rol: Team co-leader.

**SKILLS**

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**Programming:** Python, PyTorch, Matlab, y  $\text{\LaTeX}$ **Languages:** Spanish (Native), English (C2), German (B1).**ADDITIONAL INFORMATION**

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**Volunteer - Fundación Con Las Manos***2019 - Present*

Volunteer at "Con Las Manos", a project created in 2013 at Uniandes with the aim of giving back to a vulnerable community with the most powerful tool we all have: education. My role as a volunteer is to teach 5th graders basic math through a problem based learning framework and socio-emotional abilities through various interactive projects. I also work on the Operations area, we are in charge of the logistics behind everything that goes on in the organization.