

# MARÍA ALEJANDRA BRAVO

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## EXPERIENCE

CV Researcher | Thomas Brox's team

Computer Vision Group, University of Freiburg

October 2019 – Present Freiburg, Germany

- Topic: Vision-language understanding. Open-vocabulary recognition for objects and attributes and evaluation of generative vision-language models.

Applied Scientist Intern | worked with Betty Mohler and Ali Jahanian

Amazon

January 2024 – July 2024 Tübingen, Germany

- Project: Vision-Language alignment and Generative AI.

Visiting Research Student | Bernard Ghanem's team

King Abdullah University of Science and Technology (KAUST), Image and Video Understanding Laboratory (IVUL)

February 2019 – June 2019 Thuwal, Saudi Arabia

- Project: Large-Scale Human Activity Recognition in the Wild.

Research Assistant | Pablo Arbeláez's team

Biomedical Computer Vision Group, Universidad de los Andes

January 2017 – December 2018 Bogotá, Colombia

- Co-Leaded the video segmentation group.

## PUBLICATIONS

- Maria A Bravo**. Text-Image Concept Human Alignment. **Best Poster Award** in TWiML presented at NeurIPS 2024 WiML Workshop.
- Simon Ging\*, **Maria A Bravo**\*, and Thomas Brox. Open-ended VQA benchmarking of Vision-Language models by exploiting Classification datasets and their semantic hierarchy. **Spotlight** in ICLR, 2024
- Maria A Bravo**, Sudhanshu Mittal, Simon Ging, and Thomas Brox. Open-vocabulary Attribute Detection. In CVPR, 2023
- Maria A Bravo**, Sudhanshu Mittal, and Thomas Brox. Localized Vision-Language Matching for Open-vocabulary Object Detection. In GCPR, 2022
- Silvio Galesso, **Maria A Bravo**, Mehdi Naouar, and Thomas Brox. Probing Contextual Diversity for Dense Out-of-Distribution Detection. In ECCV, 2022 Workshop
- Juan L. Alcazar\*, **Maria A Bravo**\*, Guillaume Jeanneret, Ali K. Thabet, Thomas Brox, Pablo Arbelaez, Bernard Ghanem. MAIN: Multi-Attention Instance Network for Video Segmentation. In CVIU Journal, 2021
- Felipe Torres, **Maria A Bravo**, Emmanuel Salinas, Gustavo Triana, Pablo Arbelaez. Bone age detection via carpogram analysis using convolutional neural networks. In 13th International Conference on Medical Information Processing and Analysis, 2017
- Maria A Bravo**, Pablo Arbelaez. Automatic diabetic retinopathy classification. In 13th International Conference on Medical Information Processing and Analysis, 2017 \* Equal contribution

## ACHIEVEMENTS

- Deutscher Akademischer Austauschdienst - German Academic Exchange Service (DAAD) Research Grants - Doctoral Programmes in Germany, 2019/20; grant number: 57440921.
- German-Colombian Academic Cooperation between the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation grant BR 3815/9-1) and Universidad de los Andes, Colombia.
- BECA YERLY. Mathematical Program. Scholarship for academic excellence (2012)

scholar/Maria A. Bravo

## EDUCATION

PhD Student (Computer Vision)

University of Freiburg

Oct 2019 – Expected Feb 2025 Freiburg, Germany

MS in Biomedical Engineering

Universidad de los Andes

Jan 2017 – May 2018 Bogotá, Colombia

4.73/5.0 GPA - Excellent

BS in Mathematics and

BS in Biomedical Engineering

Universidad de los Andes

Aug 2011 – Dec 2016 Bogotá, Colombia

4.32/5.0 GPA - Very good

## SKILLS

CV/ML

Vision-language understanding • AI Generation • Open-vocabulary • Weakly-supervised learning • Semantic Segmentation • Video Object Segmentation • Biomedical Image Processing

Programming

Python • MATLAB •  $\LaTeX$

Libraries/Frameworks

Pytorch • OpenCV • Numpy • HuggingFace • Detectron2

Tools/Platforms

Git • Visual Studio • Slurm • AWS • Amazon SageMaker • Amazon Mechanical Turk

## MENTORING

- Ayushi Sharma (MSc Thesis, 2023)
- Anna Stroganova (MSc Thesis, 2022)
- Felix Jablonksi (MSc Thesis, 2022)
- Simon Ging (MSc Thesis, 2021)

## TEACHING

- Co-Organizer of the Deep Learning Lab
- Assistant and Supervisor of the Deep Learning and Computer Vision Seminars
- Assistant of Image Analysis and Processing
- Lecturer of Linear Algebra and Integral Calculus and Differential Equations

## LANGUAGES

Spanish (Native)

English

German

French

