

# LAURA BRAVO-SÁNCHEZ

lmbravo@stanford.edu ◇ Personal website ◇

## EDUCATION

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- PhD.**, Biomedical Data Science, Stanford University *2021 - 2026*  
**MSc.**, Biomedical Engineering, Universidad de los Andes *2017 - 2019*  
**BSc.**, Biomedical Engineering, Universidad de los Andes *2013 - 2017*  
Minor in French Language and Culture

## RESEARCH EXPERIENCE

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- PhD. Research** - Stanford Medical AI and Computer Vision Lab, Stanford University *2022 - Present*  
• Designing computer vision approaches for understanding 3D scenes and human interaction.  
• Building artificial intelligence systems for scaling parent-child interaction analysis.  
Advisor: Serena Yeung-Levy
- Researcher** - Universidad de los Andes *2019 - 2021*  
• Project leader of scene understanding of laparoscopic and robotic-assisted surgery videos.  
• Developed a machine learning approach for efficient COVID-19 testing.  
Supervisor: Pablo Arbeláez
- Research Scientist** - Tecnología y Gerencia S.A.S *Feb 2019 - May 2019*  
• Designed and implemented the experimental methodology for automatic recommendation of financial loans.  
Supervisor: Carlos E. Pérez
- MSc. Research** - Universidad de los Andes *2017 - 2019*  
• Created computer vision methods for disambiguating surgical instruments with natural language descriptions.  
• Collected and designed a dataset for fine-grained object localization based on four-leaf clover identification.  
Advisor: Pablo Arbeláez

## SELECTED PUBLICATIONS

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- **Ask, pose, unite: Scaling data acquisition for close interactions with vision language models.**  
*L. Bravo-Sánchez, J. Heo, Z. Weng, K.C. Wang, S. Yeung-Levy*  
Arxiv preprint (2024)
- **HARMONI: AI-powered 3D analysis of video-based caregiver-child interactions.**  
*Z. Weng, L. Bravo-Sánchez, et al.*  
Under revision at Science Advances.
- **Diffusion-HPC: Synthetic data generation for human mesh recovery in challenging domains.**  
*Z. Weng, L. Bravo-Sánchez, & S. Yeung-Levy*  
International Conference on 3D Vision (2024)
- **Smart pooling: AI-powered COVID-19 informative group testing.**  
*M. Escobar, G. Jeanneret, L. Bravo-Sánchez, et al.*  
Scientific Reports (2022)
- **Surgical instrument grounding for robot-assisted interventions.**  
*C. González\*, L. Bravo-Sánchez\*, & P. Arbeláez*  
Computer Methods in Biomechanics and Biomedical Engineering: Imaging (2022)
- **ISINet: An Instance-Based Approach for Surgical Instrument Segmentation.**  
*C. González\*, L. Bravo-Sánchez\*, & P. Arbeláez*  
Medical Image Computing and Computer Assisted Intervention (2020)
- **Finding Four-Leaf Clovers: A Benchmark for Fine-Grained Object Localization.**  
*L. Bravo-Sánchez\*, A. Pardo\*, G. Perez\*, P. Arbeláez*  
Sixth Workshop on Fine-Grained Visual Categorization, CVPR (2019).

\* denotes equal contribution.

## AWARDS AND TALKS

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- “How can Computer Vision guide the understanding of parent-child interactions?”. Technical talk at the 2024 WiDS Worldwide conference.
- Fulbright Colombia Minciencias Scholarship recipient 2021 Cohort (3 % acceptance, \$80.000 USD).
- Leader of Team Uniandes in the MISAW challenge part of MICCAI 2020. Won first place in the Activity Recognition task.
- Leader of Team Uniandes. We won 5 awards at the Robust Endoscopic Instrument Segmentation Challenge 2019 part of MICCAI 2019.
- “Totæ Lacrimæ: automatic recognition of human emotions based on micrographs of tear crystals”. Art exhibition (2019).

## TEACHING EXPERIENCE

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**Graduate Teaching Assistant** - Stanford University *Spring 2023, 2024*

- Part of the teaching team for the Computational Methods for Biomedical Image Analysis course

**Graduate Teaching Assistant** - Universidad de los Andes *Fall 2017*

- Instructed students in the laboratory sections of the Biomedical Image Analysis course.

**Undergraduate Teaching Assistant** - Universidad de los Andes *Fall 2016 - Spring 2017*

- Assisted in the Scientific Programming and Biomedical Image Analysis courses.
- Taught the review sessions. Helped design and grade exams. Advised students on their final projects.

## SERVICE AND OUTREACH

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- **Volunteer interpreter** - Immigrants' Rights Clinic, Stanford University *2024*
- **Student Representative** - Department of Biomedical Data Science, Stanford University *2023 - 2024*
- **Financial Officer** - Colombian Association, Stanford University *2023 - 2024*
- **Mentor** - Visible Hands Corporation *2015, 2020*  
Mentor of healthcare projects from the Innovation Girls 4.0 program, an education initiative for afrocolombian minorities from Chocó's School of Robotics (*in Spanish: Escuela de Robótica del Chocó*).
- **Volunteer Teacher** - ColombiaCrece *2018*  
Second grade mathematics teacher for older adults. Guided students in learning addition and subtraction.
- **Volunteer** - Techo Colombia *2012 - 2014*  
Raised funds and built emergency houses for underprivileged families in Bogotá