Nicolas Aparicio Claros

napariciоc | nicolas-aparicio-claros | n.aparicioc@uniandes.edu.co | Google Scholar

Summary

I am a final-semester master's degree student in biomedical engineering and a researcher at the Universidad de los Andes in Bogotá, Colombia. My expertise lies in the application of Artificial Intelligence to solve complex medical challenges. I have extensive experience in projects involving video analysis for robot-assisted surgery, drug discovery, and clinical data analysis, with a focus on studying Alzheimer's disease. With strong skills in programming, project management, and problem-solving, I thrive in collaborative and multidisciplinary environments. As a natural leader and self-directed learner, I am driven by a passion for research and innovation, aiming to create impactful solutions that advance the medical field.

Education

2024 - present Master in Biomedical Engineer at **Universidad de los Andes** (GPA: 4.83/5.0)
Surgical Workflow Analysis, Drug Discovery, and Clinical Trials

2019 - 2022 Biomedical Engineer at **Universidad de los Andes** (GPA: 4.41/5.0)
Computer Vision, Artificial Intelligence, and Drug Discovery

2019 - 2023 Microbiologist at **Universidad de los Andes** (GPA: 4.41/5.0)
Phytopathology, Molecular Biology, Transcriptomics

2022 - 2023 Minor in Bioinformatics at **Universidad de los Andes**

Work Experience

Graduate Research Assistant - CINFONIA Jan 2024 - present

Center for Research and Formation in Artificial Intelligence at Universidad de los Andes, led by Prof. Pablo Arbeláez. I work on robot-assisted surgery projects, focusing on video analysis to improve surgical workflows. Additionally, I collaborate with a pharmaceutical company to develop algorithms for drug discovery and clinical data analysis, aiming to study and better understand the progression of Alzheimer's disease.

Undergraduate Research Assistant - CINFONIA Jul 2022 - Dec 2023

I participated in studying databases associated with chemical compounds, proteins, and lipids. I assisted in developing algorithms based on convolutional graph networks for predicting molecule interactions. I also collaborated in nuclei and tissue segmentation in histopathological images.

Undergraduate Teaching Assistant Aug 2019 - Dec 2023

I helped with different courses in microbiology and biomedical engineering: advanced machine learning, modeling and simulation of biomedical systems, molecular biology, laboratory of principles of genetics and evolution, cell biology laboratory, fundamentals of cell and molecular biology, and plant genetic engineering. I tutored at the Life Sciences Support Center (SINAPSIS) and the Technology Center (Conecta-TE) of the Universidad de los Andes.

WolfPack Colombia Intern Jun 2021 - Aug 2021

I was an intern at North Carolina State University, College of Agriculture and Life Sciences. I participated in developing a diagnostic guide for the rose rosette virus.

Publications

Aparicio, Nicolás et al. (2021). "CNN for Breast Cancer Metastases Classification". In: *2021 IEEE 2nd International Congress of Biomedical Engineering and Bioengineering (CI-IB&BI)*. IEEE, pp. 1–4.

Mejía, Gabriel et al. (2021). "Hirni: Segmentation of Brain Tumors in Multi-parametric Magnetic Resonance Imaging Scans". In: *2021 IEEE 2nd International Congress of Biomedical Engineering and Bioengineering (CI-IB&BI)*. IEEE, pp. 1–4.

Aparicio, Nicolas et al. (2022). "Rose rosette Disease: A Diagnostic Guide". In: *Plant Health Progress* 23.4, pp. 482–491.

Ruiz López, Daniela Andrea et al. (2022). "BURN: Aplicación Móvil para la determinación de la gravedad y el área superficial de quemaduras". In: *Universidad de los Andes*.

Ayobi, Nicolás et al. (2024). "Pixel-Wise Recognition for Holistic Surgical Scene Understanding". In: *arXiv* 2401, p. 11174. DOI: 10.48550/arXiv.2401.11174.

Pérez, Alejandra et al. (2024). "MuST: Multi-scale Transformers for Surgical Phase Recognition". In: *Medical Image Computing and Computer-Assisted Intervention – MICCAI 2024*. Ed. by M. G. Linguraru et al. Vol. 15006. Lecture Notes in Computer Science. Springer, Cham. DOI: 10.1007/978-3-031-72089-5_40.

Claros, Nicolas Aparicio et al. (2025). "Computational tools for handling large databases of biological relevance". In: *Antimicrobial Peptides*. Elsevier, pp. 81–96.

Puentes, Paola Ruiz et al. (2025). "Artificial intelligence for the discovery of antimicrobial peptides". In: *Antimicrobial Peptides*. Elsevier, pp. 59–79.

Awards

PitVis - Endoscopic Pituitary Surgery Jul 2023 - Oct 2023

Second place winner in the PitVis Challenge, a sub-challenge of the Endoscopic Vision Challenge at the 26th edition of MICCAI 2023.

PhaKIR - Phase, Keypoint and Instrument Recognition Jul 2024 - Oct 2024

First place winner in Phase Recognition task and Third place winner in Instrument Instance Segmentation task in the PhaKIR Challenge, a sub-challenge of the Endoscopic Vision Challenge at the 27th edition of MICCAI 2024.

Skills

- **Programming:** Python, Pytorch, Java, and R.
- **Languages:** Spanish (Native), English (C1), and Portuguese (B1)
- Leadership, problem-solving, assertive communication, creativity, design, and working under pressure.

Certifications

Epidemic Modeling for Pandemic Preparedness and Prevention - **ICTP-SAIFR** Oct 2023

Applied Machine Learning in Python - **University of Michigan - Coursera** Jun 2022