

Andrés C. Rodríguez, PhD

Stefano-Franscini-Platz 5 HIL D 52.4◇ Zurich, 8093
(+41) 76 595 7722 ◇ andrescamilor (at) gmail.com
<https://ac-rodriguez.co/> ◇ Google-Scholar



PROFILE

I am an **AI-specialist with over 6 years of experience** in developing cost-effective machine learning models for cost-effective and large-scale data applications. **Led a tech startup for the past 1.5 years** overseeing strategic development and innovations in the agriculture and ESG sectors. Collaborated with business partners on projects for large-scale crop and environmental monitoring using satellite images.

My technical developments include: (1) a pioneering application of **generative models** in physics; (2) highly accurate AI-models for image classification even when there is little to no training data samples; (3) an innovative technology for large-scale data analysis that reduces the labelling effort by 80%.

EXPERIENCE

Kapok.ai

Co-founder, Chief Technology & Architect Officer

April 2022 - September 2023

Zurich, Switzerland

- Developed a satellite image based AI-product to forecast crop yields with > 90% accuracy
- Developed environmental monitoring of deforestation and prototypes of biodiversity monitoring
- Development of MLOps with ETH Cluster, Google Cloud and AWS
- Led the formulation and implementation of the company's financial and resource planning

ETH Zurich

Research Assistant

October 2017 - September 2022

Zurich, Switzerland

- Developed an AI-technology to map more than 2 billion palm oil trees in south-east Asia with open access data for a business partner in the chocolate industry looking to innovate and reduce monitoring costs
- Guided and supervised multiple thesis in joint industry projects in several topics, including: Uncertainty estimation, deforestation detection and crop cocoa mapping
- Co-organizer of several academic and social events in Machine Learning and social media coordinator

Jose A Impresores (Lithography)

Project Leader

February 2013 - February 2014

Bogota, Colombia

- Led company-wide projects integrating Process Engineering and Data workflows with R and SQL to drive KPI improvements including Customer Retention and Delivery on Time and average production costs.
- Designed a lean manufacturing project with the company's board.
- Directed the project implementation involving over 15 employees across sales, production and IT departments.

EDUCATION

ETH Zurich

PhD Computer Vision and Machine Learning

October 2017 - September 2022

Zurich, Switzerland

- Thesis: "Efficient machine learning for large scale remote sensing and natural world datasets"
- Main focus: Intersection of Deep Learning / Machine Learning, Computer Vision and Remote Sensing for open issues in Ecology and Agriculture.

ETH Zurich

Msc Statistics

August 2017

Zurich, Switzerland

- Thesis: “Unsupervised Learning: Generative Models for Cosmology”
- Main focus in Machine Learning and probabilistic and generative models
- Colfuturo scholarship for graduate studies funded by the Colombian Government

Pontificia Universidad Javeriana

B.S. Industrial Engineering

December 2012

Bogota, Colombia

- Thesis: “Optimizing the use of the muscles in industrial jobs by rotation schemes”
- Main focus in the intersection of mathematical modeling in industrial environments
- Graduated with the best GPA of the program in my cohort
- Outstanding High school Bachelor Scholarship

TECHNICAL STRENGTHS

Advanced Knowledge

Python, Pytorch, Tensorflow, GDAL, QGIS, R, SAS, STATA, GIT

Intermediate Knowledge

Java, SQL, C++, AWS, GCloud

LANGUAGE SKILLS

English C2

German C2 (Goethe C2 Level Certificate)

Spanish Native Language

SELECTED PUBLICATIONS

Google-Scholar

- [1] RODRÍGUEZ, A. C., D’ARONCO, SCHINDLER, K., AND WEGNER, J. D. Fine-grained species recognition with privileged pooling: Better sample efficiency through supervised attention. *IEEE Transactions on Pattern Analysis & Machine Intelligence*, 01 (sep 2023), 1–16.
- [2] RODRÍGUEZ, A. C., D’ARONCO, S., DAUDT, R. C., WEGNER, J. D., AND SCHINDLER, K. Zero-shot bird species recognition by learning from field guides. *Accepted to IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2024* (2024).
- [3] RODRÍGUEZ, A. C., D’ARONCO, S., SCHINDLER, K., AND WEGNER, J. D. Mapping oil palm density at country scale: An active learning approach. *Remote Sensing of Environment* 261 (2021), 112479.
- [4] RODRÍGUEZ, A. C., DAUDT, R. C., D’ARONCO, S., SCHINDLER, K., AND WEGNER, J. D. Robust damage estimation of typhoon goni on coconut crops with sentinel-2 imagery. *Remote Sensing* 13, 21 (2021), 4302.
- [5] RODRÍGUEZ, A. C., KACPRZAK, T., LUCCHI, A., AMARA, A., SGIER, R., FLURI, J., HOFMANN, T., AND RÉFRÉGIER, A. Fast cosmic web simulations with generative adversarial networks. *Computational Astrophysics and Cosmology* 5, 1 (Nov 2018), 4.

OTHER SKILLS

Rowing, continuous participation in national and international competitions

Also passionate about crossfit, meditation and biking