

Dr. Leonardo Ramirez-Lopez



Head of Data Science • Industry Scientist and Digital Business Developer

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Education

MSc in Business Analytics (with Distinction)

United Kingdom

Imperial College London – Business School

2023–2025

- Leadership in data-driven decision-making, machine learning for business, optimisation, and AI-enabled organisations

Post-Doctoral Researcher

Switzerland

ETH Zürich

2013–2015

- Advanced research in data-driven modelling and machine-learning-based optimisation within large-scale systems

Dr. rer. nat. (magna cum laude)

Germany

Eberhard Karls Universität Tübingen

2009–2013

- Doctoral research in machine-learning-based optimisation, sampling design, and large-scale sensing systems

MSc in Agronomy (Soil Science and Plant Nutrition)

Brazil

University of São Paulo

2007–2009

- Advanced quantitative training in soil science, spectroscopic analysis, and digital mapping

BSc in Agricultural Engineering

Colombia

University of Cundinamarca

2001–2006

- Engineering foundation in applied mathematics, systems thinking, and agricultural economics

Work experience

Head of Data Science

Switzerland

Data Science Department, BUCHI Labortechnik AG

- Established and led the Data Science function, defining organisational scope, operating model, and analytics strategy in support of company-wide digital business transformation
- Built and led a distributed Data Science team of six (five permanent staff across Switzerland and Egypt, plus one intern), establishing team structure, mentoring practices, and delivery standards
- Operated at the interface between R&D and business units, leading the development of machine-vision- and machine-learning-based systems, combined with cloud and embedded AI services, to deliver intelligent laboratory automation, AI-based operator assistance, and new ML-driven digital service and business models

Data Analytics Manager, NIR

Switzerland

Department of Near Infrared (NIR) Spectroscopy, BUCHI Labortechnik AG

2016–2020

- Led data enrichment initiatives with customers to improve the accuracy of laboratory devices across more than 20 agricultural product domains using machine learning
- Managed customer-facing analytical projects and long-term technical partnerships
- Designed and delivered an analytics service reducing sensor calibration time from weeks to less than one hour

NIR Software Specialist

Switzerland

Department of Near Infrared (NIR) Spectroscopy, BUCHI Labortechnik AG

2014–2016

- Developed software tools for the analysis and processing of NIR spectroscopy data
- Designed and implemented software unit tests to improve robustness and reliability
- Maintained and curated NIR calibration databases supporting laboratory instrumentation

Postdoctoral Researcher

Switzerland

ETH Zürich / Swiss Federal Institute for Forest, Snow and Landscape Research (WSL)

2013–2015

- Designed and delivered internal and external training programmes in scientific programming and data analysis

- Conducted research in spatial and geographical modelling of soils in Swiss forest ecosystems, developing machine-learning-based predictive models of soil properties
- Published six peer-reviewed scientific papers in agricultural and environmental modelling

Associate Scientist

Department of Geosciences, Eberhard Karls Universität Tübingen

Germany

2014

- Published peer-reviewed research on agricultural and environmental modelling
- Developed and released open-source software packages for the analysis of spectral data

Researcher

Georges Lemaître Centre for Earth and Climate Research, Université Catholique de Louvain

Belgium

2011–2012

- Developed spatial analysis methods for three-dimensional monitoring and mapping of soil organic carbon using sensing technologies
- Built a national-scale agricultural soil database in Luxembourg to support cost- and time-efficient monitoring of climate change impacts on soil carbon dynamics

Plant Breeding Manager

Palmar del Llano (Oil Palm Plantation)

Colombia

2007

- Coordinated and managed an oil palm plant breeding programme, overseeing field trials and selection activities

Research Intern

Colombian Research Centre for Oil Palm (Cenipalma)

Colombia

2006

- Supported research in plant nutrition and geoinformatics to analyse relationships between nutrient status and disease susceptibility in oil palm cultivation

Professional engagement

FAO Global Soil Partnership

Member of the soil spectroscopy steering committee of the FAO Global Soil Partnership, contributing to international coordination, standards, and capacity development in soil spectral analysis.

FAO Consultant Roster

Included on the FAO consultant roster for technical assignments, indicating eligibility for short-term expert engagements with the Food and Agriculture Organization of the United Nations.

Skills

Technical and leadership

Leadership of data science, machine learning, and analytics platforms, spanning embedded and cloud-based AI systems, API-driven services, machine vision, and production-grade analytical workflows, with a strong hands-on technical background in R, Python, Julia, and C++

Programme and delivery leadership

Leadership of complex analytics and AI initiatives using agile and scaled delivery frameworks, including the Scaled Agile Framework, coordinating cross-functional teams across research and development, product, and business units

People and organisational leadership

Building, mentoring, and leading multidisciplinary and distributed data science teams, including data scientists, machine learning engineers, DevOps specialists, and data stewards, with responsibility for capability development and delivery standards

Languages

Spanish (Native); English (Fluent); Portuguese (Fluent); German (Basic)

Achievements

Awarded Distinction (MSc Business Analytics)

Imperial College London - Business School

United Kingdom

2025

- Awarded distinction for academic excellence in the Master of Science in Business Analytics programme

Founder, Data Science department

BUCHI Labortechnik AG

Switzerland

2020

- Established the first Data Science function within BUCHI as part of the company-wide digital transformation initiative

Best Poster Presentation

International Conference on Soil Modelling

Global

2017

- Awarded first prize for best scientific poster presentation at an international research conference

Graduated magna cum laude (PhD)

Eberhard Karls Universität Tübingen

Germany

2013

- Completed doctoral studies with highest academic distinction

Patents

Methods for providing a predictive model for spectroscopy and calibrating a spectroscopic device

Key patent for development of NIR web-services, Patent number: EP4581349A1 (pending)

- <https://patents.google.com/patent/EP4581349A1/en>

Automated identification and quantification of solvent mixtures in rotary evaporation systems

Key for automated distillation (Under application)