

Pedro Silva

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Summary

I lead engineering teams building the data and AI platform foundations that make analytics, machine learning, and AI work reliably in practice. My background spans computational research — ML at INESC Porto, large-scale bioinformatics pipelines at UC Berkeley — through applied data science and software engineering to platform and people leadership. My focus is on closing the gap between promising prototype and reliable operational system, at scale and under real engineering constraints.

Experience

Booking.com

Mar 2022 – present

Senior Engineering Manager — Data & AI Platform, Central Technology

- Lead a large-scale engineering organization spanning data and AI platform teams, with direct reports including engineering managers and principal engineers.
- Directed the migration of Booking.com's foundational data infrastructure — ingest, storage, compute, and catalog — from on-premises Hadoop to AWS.
- Designed and executed compute and storage optimization across the company's AWS footprint.
- Define engineering standards, operating model, and architectural direction across federated platform teams serving analytics, ML, and AI consumers across the company.
- Responsible for organizational design, hiring, performance management, and leadership development at organizational scale.
- Managed vendor procurement including contractor engagements, software licensing, and SoW drafting and negotiation.

Booking.com

Nov 2019 – Feb 2022

Engineering Manager — Big Data Platform; Data Workflows & Tools

- Led teams responsible for core data pipeline infrastructure, workflow orchestration, and internal tooling serving ML and analytics consumers across the company.
- Drove reliability, scalability, and governance improvements to data infrastructure under rapid adoption growth.
- Built and scaled teams through hiring and organizational design.

Booking.com

Apr 2018 – May 2021

Senior Software Developer — Big Data Infrastructure; Data Workflows & Tools

- Designed and implemented core data infrastructure components: ingestion pipelines, distributed processing frameworks, and storage systems at petabyte scale.
- Led technical delivery on high-impact data platform initiatives alongside engineering management responsibilities.

Booking.com

Jul 2016 – Apr 2018

Software Developer — Big Data Infrastructure

- Developed and maintained large-scale data processing systems on Hadoop and Spark infrastructure.

Booking.com

Sep 2013 – Jul 2016

Data Scientist — Frontend Analytics and Applied Modeling

- Built and deployed statistical models and analytical pipelines supporting product and business decisions.
- Applied machine learning methods to frontend analytics and behavioral data at scale.

INESC Porto

Mar 2011 – Aug 2013

Researcher — Doctoral Research in ML, NLP, and Music Information Retrieval

- Designed, developed, and published peer-reviewed open-source software for machine learning, natural language processing, and music information retrieval.
- Research scope: classification, sequence modeling, and perceptual modeling of musical structure.

UC Berkeley

Aug 2008 – Mar 2011

Software Developer — Large-Scale Bioinformatics Analysis Pipelines

- Developed and applied open-source software for high-throughput bioinformatics sequencing data anal-

ysis pipelines.

- Contributed to genome-wide DNA methylation research resulting in multiple peer-reviewed publications.

Various clients

2006 – 2011

Freelance Developer — Applied Modeling and Web Development

- Built predictive models for customer attrition, auction outcomes, and real-estate market state inference.
- Delivered web backend systems and frontend usability improvements.

Education

Faculdade de Engenharia da Universidade do Porto

2011 – 2013

PhD program, Computer Engineering (incomplete — withdrew after two years to join industry)

San Francisco State University

2006 – 2010

Master of Arts — Radio and Television Broadcasting Technology

Middlesex University

2001 – 2005

Bachelor of Arts — Audio Engineering

Instituto Superior de Ciências do Trabalho e da Empresa (ISCTE)

1998 – 2001

Bachelor of Business Administration (partial)

Skills

Machine Learning & AI: scikit-learn, statistical modeling, NLP, applied ML, ML platform design, model lifecycle management

Data Engineering: Apache Spark, Hadoop, Snowflake, SQL, Kubernetes, Terraform, Kubeflow, FinOps, data pipeline design, data governance

Data & ML Ops, Platform Architecture: data and ML ops frameworks, platform architecture, compute optimization, AWS (S3, EKS), reference architecture definition

Engineering Leadership: large-scale migrations and replatforming, operating model design, organizational design, performance management, cross-directorate alignment, vendor procurement, contract management

Programming: Python, Java, SQL, C, Clojure, Prolog, Ruby, Rust, Go

Selected Publications

- Genome-wide evolutionary analysis of eukaryotic DNA methylation — *Science*, 2010
- Genome-wide demethylation of *Arabidopsis* endosperm — *Science*, 2009
- Local DNA hypomethylation activates genes in rice endosperm — *PNAS*, 2010
- Regulation of imprinted gene expression in *Arabidopsis* endosperm — *PNAS*, 2011
- The effect of microtiming deviations on the perception of groove in short rhythms — *Music Perception*, 2012
- Classification, segmentation and chronological prediction of cinematic sound — *ICMLA*, 2012

Languages & Awards

Languages: Portuguese (native), English (full professional)

Awards: LXMLS 2013 Grant — Lisbon Machine Learning Summer School; R&D Grant — INESC Porto doctoral research