

Curriculum Vitae

Bernardo Freire

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Personal Information

- **First Name:** Bernardo
- **Last Name:** Freire Barboza da Cruz
- **Birthday:** 29/05/1985
- **Nationalities:** Swiss & Brazilian
- **Place of Origin:** Wildberg ZH, Switzerland
- **Place of Birth:** Rio de Janeiro, RJ, Brazil
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Personal Profile

I am a former aeronautical engineer with 3 years of experience as a data scientist and a recent graduate of MSc in Data Science (summer 2023). During my 7 years as an aeronautical engineer, I managed complex interdisciplinary projects in aircraft structure development and certification. As a data scientist, I developed and maintained machine learning models, demonstrating a passion for learning and innovation.

Career

Stadler Rail AG, Data Scientist (06/2023 – present)

- Developed machine learning models for predictive maintenance, e.g., door systems, compressor systems, HVAC systems.
- Contributed to projects developing data-driven solutions for optimizing rolling stock maintenance processes.

- Established CI/CD pipeline for modeling activities and created Python packages for internal use. **Technologies:** Gitlab, Gitlab CI/CD, Sklearn, FastAPI (Python, SQL, API)

Prognolite AG, Data Scientist (10/2022 – 03/2023)

- Developed regression models predicting turnover using customer data and external factors like weather and holidays.
- Created multi-output regression models to predict menu sales based on customer data and external factors. **Technologies:** Github, Tidymodels, Sklearn, Random Forest, XGBoost, Cubist (R, Python)

Crealogix AG, Data Scientist (09/2021 – 09/2022)

- Developed prospect and upsell models.
- Extracted information from fact-sheets using customized OCR.
- Created user journeys for chatbot solutions using IBM Watson and Spacy. **Technologies:** Sklearn, Spacy, Random Forest, XGBoost, RMarkdown (Python, SQL, R)

Bucher Leichtbau AG (01/2014 – 09/2021)

Compliance Verification Engineer (10/2017 – 09/2021)

- Advised and supported all departments of Bucher Leichtbau AG in initial airworthiness certification matters.
- Independently verified documentation for “minor” and “major changes” against certification requirements. **Technologies:** FEMAP, Mechanical Engineering

Certification Engineer (01/2014 – 10/2017)

- Conducted FEM calculations/verification and prepared internal and external test reports.
- Communicated with customers, official bodies, and authorities.
- Consulted development department for design optimization. **Technologies:** FEMAP, Mechanical Engineering

Education

- 09/2020 – 06/2023: MSc in Data Science, Lucerne University of Applied Sciences (HSLU)
- 09/2010 – 09/2013: BSc in Aviation ZFH, Zurich University of Applied Sciences (ZHAW)
- 08/2008 – 08/2009: Federal vocational baccalaureate (BMS), Berufsmaturitätsschule Zurich (BMZ)
- 08/2002 – 08/2006: Apprenticeship electrician EFZ, Gemeindewerke Rüti (GWR)

Commercial Projects

Topic	Technology
Prospect and up-sell model for deposit account	Python, XGBoost, Shap, Pandas, Sklearn
Multioutput regression model for central kitchen	Python, Pandas, XGBoost, Sklearn, R, tidymodels
Multioutput regression model for bakery	Python, Pandas, XGBoost, Sklearn, R, tidymodels

Side Projects

Topic	Technology
Web-App for Project Management	Python, Flask, SQLAlchemy, SQLite, JINJA2
Energy Dashboard	Python, AWS Lambda, S3, RDS, Streamlit
Electro Mobility in CH	MongoDB, Python, Streamlit
Personal Blog (ongoing)	Python, Statmodels, Pandas, Quarto
Streaming Wikipedia Changes	Apache Kafka, KSQL, Docker
Scraping of Netdoktor for ETL of Master Thesis	BeautifulSoup, Selenium, Pandas, Spacy
Scraping of Bettybossi for Nutrition Investigation	BeautifulSoup, Selenium, Pandas, Spacy

Individual Interests

- Python Web Development
- Reading Articles on “Medium”
- Online Courses
- Traveling
- Surfing

References available upon request.