



SAM (Hessam) H. BABOLI, PhD

DATA SCIENCE & BUSINESS LEADER | DIGITAL HEALTHCARE INNOVATION



SWITZERLAND (BERN)
SPAIN (BARCELONA)



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EXECUTIVE SUMMARY

Strategic and Innovative leader with **10+ years of corporate experience** bridging **AI, Advanced Analytics**, and **customer data-centric and AI-enhanced solutions**. Passionate about **Healthcare, AI-driven process optimization** and **digital transformation** especially very keen in healthcare technologies.

Core Expertise:

- ✓ **Business Analysis & Requirement Management (MICROSOFT certified)**
 - Experienced in business analysis and requirements engineering across healthcare and tech sectors; skilled in stakeholder alignment, process modeling (BPMN), and translating complex needs into actionable specifications and data products.
- ✓ **AI, Cloud & Data Solutions**
 - Developed on Building **data ecosystems** (AWS S3, Azure Data Lake, Spark, SQL) for large-scale AI model training and decision-making.
 - Automated **AI workflows** via MLOps pipelines, serverless microservices, and Kubernetes for scalable deployment.
- ✓ **Data Strategy, Healthcare & Digital Transformation**
 - Developed domain-specific **data products** to boost efficiency and regulatory compliance.
 - Knowledge in **Health Technology Assessment (HTA), Real-World Evidence (RWE), CRO collaboration, and medical device development**.
 - Experience on Optimizing **ETL pipelines** (AWS stacks, Databricks spark, Python, Snowflake, DBT) for real-time data ingestion and transformation.
 - Contributed on implementation of **data catalogs** (AWS Glue) for improved governance, compliance, and accessibility.
- ✓ **Automation, Supply chain management & Financial Insights**
 - Applied **Generative AI, reinforcement learning, and predictive modeling** for PQS automation and predictive risk assessments.
 - Applied **supply chain optimization, demand forecasting, AI in pricing, revenue management, and FinTech solutions** to drive strategic decision-making.
- ✓ **Regulatory Compliance, Security & Strategy (NOVARTIS certified)**
 - Knowledge of **GxP adherence, explainable AI (XAI), and audit-ready models** with SHAP/LIME explainability.
 - Trained and practiced on **secure data governance frameworks** (encryption, RBAC, immutable audit trails) aligned with **GDPR, HIPAA, and GxP standards**.
 - Applied **anonymization and pseudonymization techniques** for compliant AI-driven insights.
 - Leveraged **customer-centric design thinking** to align AI solutions with business strategy and user needs.
- ✓ **Cross-Functional Leadership & Business Impact**
 - Led **multi-disciplinary teams** (MLOps, data scientists, R&D) to align digital solutions with business objectives.
 - Collaborated across **R&D, compliance, operations, and strategy management** to drive measurable efficiency gains and cost reductions.

WORK EXPERIENCE

VIDA-SENSE (SWITZERLAND) – 07/2024 - present

ADVISORY BOARD AI, MEDICAL DEVICES INTELLIGENCE & ALGORITHMS

SANA MEDITECH (SWITZERLAND/SPAIN) – 03/2019 – 02/2024

ADVISORY BOARD – FORMER DIRECTOR AI, MEDICAL DEVICES INTELLIGENCE & ALGORITHMS (CO-FOUNDER)

- Directed the development of AI-powered homecare and remote medical services, integrating computer vision and AI/ML techniques for clinical decision support systems in a pioneering MedTech startup.
- Led two groundbreaking projects in collaboration with hospitals:
 - Fetal Monitoring Solution: Designed advanced signal processing models (wavelet denoising and AI) to enhance fetal risk prevention for homecare, leveraging IoT technologies.
 - Ultrasound Imagery Analysis: Developed deep learning and pattern recognition techniques for real-time diagnostics of pulmonary infections, including COVID-19.
- Navigated the complex regulatory landscape of MedTech, ensuring compliance with MDR, CRO/CDMO standards, and ISO-14971/ISO-13485 for risk and quality management.
- Supervised a team of Master and PhD students in cutting-edge R&D initiatives, driving technical feasibility and innovation.
- Specialized in IT health standards (HL7) and risk management frameworks for high-impact medical device solutions.
- Knowledge AI & Data Strategy, Data Products & Data Mesh Enablement, GxP standards.

Key activities: Risk and Quality management · PT&D · CRO & MDR · ISO-14971 and ISO-13485 Risk and Quality management · IT Health standards HL7

ZF GROUP (SWITZERLAND) – 01/2021 - 03/2025

HEAD OF PRODUCT DATA & AI (03/2023 - 03/2025) – AFTERMARKET DIGITAL SOLUTIONS (ZURICH)

- Spearhead a multi-disciplinary Data & AI team (MLOps engineers, Data engineers, ML engineers, and BI translators) across countries to prototype digital solutions for Light Commercial Vehicles' mobility services.
- Conduct feasibility studies leveraging NLP and Multimodal Large Language Models (LLMs) and GenAI and Agentic AI to enhance Diagnostics and Workshop Management Systems.
- Drive intelligent predictive maintenance product feature to improve vehicle uptime and optimize fleet management from ideation to production.
- Collaborate with stakeholders to identify and validate opportunities for innovative data-driven solutions in the aftermarket sector.
- Drive Data Product strategies (mesh) for production-ready features and infrastructure: data ingestion layer (streaming, ERP, external), data medallion processing structure, data pipelines, serverless microservices for production, python SDK, AWS SQS, ...

Key activities: *Product Development · Generative AI · Product Data strategy & management*

LEAD ADVANCED ANALYTICS AND AI (01/2021 - 03/2023) – GLOBAL PRODUCT INNOVATION LAB (BERN)

- Led transformational product innovation from scratch triggered by Innovation Ignition Workshops (double diamond) for Edge AI technologies in Digital solutions for Mobility services.
- Conducted early phase MVPs and built product team for series development of predictive maintenance solutions using AI-driven NVH (vibro-acoustic real-time data) sensing to optimize fleet operations' performances.
- Launched and implemented initiatives in Last-Mile Delivery Recommender System to enhance efficiency and sustainability, and fleet orchestration solutions for seamless operations.
- Established and scaled a team of Data Engineers and Embedded IoT Engineers from the ground up to support product innovation.
- Pioneered advancements in AI technologies to drive sustainability and operational excellence in fleet management, as well as contributing to building Digital Twin for manufacturing.

Key activities: *Design Thinking · Team Leadership · Business Development · Lean startup*

PRESTAMOS PRIMA (BARCELONA, SPAIN) – 04/2017 - 11/2020

LEAD DATA SCIENTIST (04/2019 - 11/2020) -- PRICING & REVENUE MANAGEMENT @ The Top Line Lab

- Designed and developed advanced analytical toolkits for pricing optimization, recommender systems, and revenue management to drive business growth.
- Led initiatives in product/customer segmentation, pricing simulation, dynamic pricing, optimization.
- Implemented automated analytical tools and productized solutions with impactful front-end visualizations to support data-driven decision making.
- Established a common data model strategy to adapt pricing toolkits for both B2B and B2C businesses, enhancing scalability and flexibility.
- Enabled automated visibility and actionable insights for pricing and revenue stakeholders, streamlining operations and improving performance.

Key activities: *Product Development · Predictive Modelling · Trifacta Cloud Data Cleansing*

NEUROFINTECH CO-FOUNDER & CEO (04/2018 - 04/2019) -- P2P DEV. RISK/DATA

- Co-founded and led the development of an innovative peer-to-peer lending platform powered by cutting-edge AI technologies.
- Oversaw strategy management, product development, risk management, and product ownership, ensuring alignment with the startup's vision.
- Directed a team of four developers and data experts, driving short- & mid-term strategic planning.
- Acted as the Product Owner, prioritizing requirements and delivering impactful features to support the company's growth trajectory.
- Played a pivotal role in scaling the business and leveraging AI to transform the peer-to-peer lending landscape.

Key activities: *Product Development · Team Leadership · Business Dev*

HEAD OF RISK / SENIOR DATA SCIENTIST (05/2017 - 04/2018)

- Designed and implemented machine learning models for creditworthiness assessment and scoring, driving innovation in financial risk management.
- Launched a comprehensive Risk Scorecard for PDL (Payday Loans) and LoC (Lines of Credit) products, ensuring robust risk evaluation and fraud prevention.
- Collaborated with global teams to develop complex analytical models, risk / fraud engines.
- Utilized tools and frameworks such as ETL processes, SQL/NoSQL database management, data cleansing, Metabase BI, and agile development (Scrum).
- Transitioned from Senior Data Scientist to Head of Risk; Established and led a multidisciplinary team of Data Engineers, Data Scientists, and Financial Analysts.
- Delivered data-driven insights and strategies to enhance financial product reliability and mitigate risks effectively.

Key activities: *Product Development · FinTech · Risk Analytics · Fraud Detection · Fintech*

ACCENTURE DIGITAL - OPERATION ANALYTICS (BARCELONA, SPAIN) – 06/2015 - 04/2017

DATA SCIENCE CONSULTANT / DATA ANALYST

- Delivered high-impact analytics solutions across diverse industries, including pharmaceuticals, electrical, aviation, mobile, and automotive, driving innovation and measurable business value on:
- Fraud Analytics: Conducted warranty management analysis, claims classification, and text mining to detect and prevent fraudulent activities (gradient boosting, random forest). Developed intelligent engines to automate business rules and enhance fraud detection capabilities.
- Risk Analytics: Designed Predictive Asset Maintenance (PAM) solutions using machine learning for oil & gas and energy automation companies, optimizing asset performance, minimizing downtime, and mitigating risks.
- Demand Forecasting: Applied statistical and machine learning techniques (ETS, ARIMA, neural networks, random forests) for demand sensing and forecasting, improving supply chain management and inventory optimization.

- Machine Learning Solutions: Developed classification, clustering, optimization, regression models, parametric analysis, and text mining solutions for client projects.
- Business Intelligence and Data Visualization: Created interactive dashboards and reports using QlikView, Power BI, Spotfire, and Tableau to enable data-driven decision-making. Conducted client training to maximize adoption and impact.
- IoT and Streaming Analytics: Implemented real-time streaming analytics for connected devices and IoT ecosystems, deriving actionable insights from sensor data to optimize operations and enhance customer experiences.
- Leveraged advanced tools and platforms, including R, Python, SQL (PostgreSQL), Amazon AWS, Microsoft Azure ML, and ETL processes, to build scalable analytics and machine learning solutions.
- Demonstrated expertise in consultancy, supply chain management, business analytics, and client engagement, ensuring impactful results for cross-industry stakeholders.
- Fostered cross-functional collaboration and delivered knowledge transfer sessions to empower teams in leveraging advanced analytics techniques.

Key activities: *Consultancy · Business Intelligence (BI) · Amazon Web Services (AWS) · Microsoft Azure · R & Python programming · SQL · Supply Chain Management · Business Analytics*

RESEARCH - EDUCATION

MBA - BUSINESS INNOVATION & STRATEGY

09/2021 - 01/2023

THE POWER MBA (SWITZERLAND)

FROM BUSINESS MODEL INNOVATION TOWARD LEAN STARTUP & ENTREPRENEURSHIP

RESEARCH FELLOW - POSTDOCTORAL

01/2013 - 08/2015

ICFO - INSTITUT OF PHOTONIC SCIENCES (SPAIN)

PHOTONIC SCIENCE & STATISTICAL QUANTUM MANY-BODY SIMULATION

Research on Quantum simulation and Quantum statistics; Referee for Scientific Journals of American Physical Society, European Physical Journals, the Journal of Optical Society of America; Organizer of a weekly scientific meetings.

Skills: Numerical Analysis · Algorithm Development · Research and Development (R&D) · Mentoring

PHD IN THEORETICAL PHYSICS - QUANTUM PHYSICS

10/2008 - 12/2012

UNIVERSITÄT DES SAARLANDES (GERMANY) & UNIVERSITAT AUTÒNOMA DE BARCELONA (SPAIN)

QUANTUM INFORMATION & STATISTICAL QUANTUM OPTICS

Developed theoretical models and investigated the dynamics of cavity quantum electrodynamics systems; Analyzed quantum simulation models using cold atoms and implemented the Quantum Monte Carlo method for numerical simulations; Conducted extensive computational physics studies involving matrix analyses and statistical processes; Proficient in programming languages such as C++, MATLAB, and Mathematica for scientific computing and simulations.

Skills: Team-working and Problem-solving · Worldwide collaborations and networking · Communication skills · Mentoring PhD students · Teaching Assistant

RESEARCH FELLOW APPLIED PHYSICS

10/2007 - 10/2008

SOLID STATES PHYSICS SIMULATION - JOHANNES KEPLER UNIVERSITÄT LINZ (AUSTRIA)

PUBLICATIONS

- Published 15 scientific papers, out of those the following distinguished one:
 - [Nature Photonics](#)
 - [Physical Review Letter](#)
- MedTech related papers:
 - [Elsevier Helyon](#) in Fetal Monitoring.
 - [Preprint](#) Lung Infection Ultrasound Imagery detection.

LANGUAGES

- ENGLISH (FLUENT)
- SPANISH (NATION)
- GERMAN (B2) CATALAN (B2)

PROFESSIONAL SKILLS

