Akanksha Vishwakarma, PhD

Boston, MA 02134| akanksha.vishwak@gmail.com | (857) 961-9564 | www.linkedin.com/in/avishwak/ | US Permanent Resident (GC)

Data Scientist with a PhD in computational physics and 6+ years of experience delivering end-to-end machine learning, experimentation, and personalization solutions from research to large-scale production. Proven track record in building real-time data pipelines, developing recommendation and analytics systems, and leading complex A/B testing and causal inference projects across high-energy physics (CERN) and FinTech. Adept at applying advanced deep learning, large language models, and generative AI to solve challenging, real-world problems and translate data into measurable business and product impact.

TECHNICAL SKILLS

Languages & Frameworks: Python, C++, SQL, Bash, CUDA, PyTorch, TensorFlow, Hugging Face Transformers, LangChain, Scikit-learn, XGBoost, pandas
GenAI & LLM Concepts: Large Language Models (LLMs), Natural Language Processing (NLP), Prompt Engineering, Retrieval-Augmented Generation (RAG), Deep Learning, Feature Engineering
Cloud & MLOps: AWS, CERN Cloud, Docker, Kubernetes, GitLab/GitHub CI/CD, MLflow, FastAPI
Databases & Data Processing: PostgreSQL, MongoDB, MySQL, Snowflake, Vector Databases (FAISS), Apache Airflow, Spark
Tools & Visualization: Git, Jupyter, Streamlit, Matplotlib, Seaborn, Tableau, Power BI

WORK EXPERIENCE

Freelance Data Scientist | Independent Project | Boston, MA Jan 2025 – May 2025

- Designed and deployed WAffy, an NLP and LLM-powered multi-agent CRM on WhatsApp that leverages advanced natural language processing for message categorization and automates client follow-ups, reducing workload by 80% across 15+ SMBs.
- Engineered a LangGraph and VectorDB backend integrated with retrieval-augmented generation (RAG) to enable scalable, personalized customer workflows.
- Improved lead retention by 30% through context-aware automation and dynamic, AI-powered customer engagement.

Fintech Data Scientist | R&D Lead – Level E Research (FinTech, Startup), Edinburgh, UK Dec 2022 – Jun 2023

- Led the launch of ESG investment models, improving alpha by 5% and securing the first institutional ESG investment through strategic deployment, effectively guiding the business and communicating key insights to executive leaders, stakeholder.
- Collaborated with engineering and design teams to integrate Java infrastructure with Python R&D workflows, streamlining data preprocessing and cutting preparation time by 40%.
- Automated annual risk and investment reports in Python, reducing manual effort by 70% and boosting reporting efficiency.
- Pioneered the adoption of a secure GitLab-based version control system, successfully migrating 100% of the team and establishing best practices, contributing to the strategic direction for leveraging real-time stock data.

Data Scientist | Physics Research Fellow – CERN, Geneva, Switzerland and University of Edinburgh, UK Dec 2019 – Nov 2022

- Developed and optimized a recurrent neural network (RNN)-based ML pipeline with TensorFlow to classify >100M of particle collision events per day at CERN; boosting accuracy by 20% and enabling the first ML-driven analysis of long-lived particles.
- Secured £175K Marie Curie innovation grant based on a strategic, data-driven proposal; demonstrated product vision, executive communication and cross-functional influence.
- Proactively identified the need to accelerate simulations and partnered with NVIDIA to optimize simulation, reducing runtime by 19% and integrating improvements into CERN's production system, demonstrating ownership and driving results.

Data Research Assistant – CERN, Geneva, Switzerland and DESY, Germany Jul 2015 – Nov 2019

- Built and optimized a Boosted Decision Tree model using XGBoost classifier for imbalanced signal detection; achieved 85% accuracy with robust quantitative analysis rigor and data science techniques.
- Conducted comprehensive data benchmarking against physics simulation models (A/B-style comparative experiments), reducing measurement uncertainty by 13% through experimental design and statistical analysis.
- Led open-ended exploratory data analysis and delivered impactful insights via 50+ interactive visualizations (Matplotlib, Streamlit); built scalable pipelines with global teams, showing team player mindset and strong collaboration.

EDUCATION

PhD in Computational Particle Physics – Humboldt University, DESY, Germany | CERN, Switzerland Jul 2015 – Sep 2019
Integrated Master of Science in Physics – CEBS, University of Mumbai, India | Lyon, France Aug 2010 – May 2015

GLOBAL IMPACT

- 5+ peer-reviewed publications in leading physics journals [Full list] and earned public recognition for AI advancements in particle physics through Expert Interview and Presentation demonstrating strong written and verbal communication skills.
- Delivered strategic projects across 5 countries (India, Germany, France, Switzerland, UK), excelling in stakeholder management and global collaboration.