UMAR QURESHI

Vancouver, BC, Canada | +1-604-700-9729 | umarqureshi03@gmail.com | umarque.dev | linkedin.com/pub/umar-que

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SUMMARY

Machine Learning Engineer with 7+ years of experience designing, deploying, and scaling AI systems that bridge cutting-edge research and real-world impact. Proven track record leading cross-functional teams, architecting production-grade ML infrastructure, and delivering products that reduce friction, enhance human performance, and solve complex problems at scale. Passionate about building intelligent, agentic systems that feel like second brains, blending technical depth with human-centered design.

CORE SKILLS

Machine Learning & AI

- Transformers, LLMs, Encoder–Decoder Models, CNNs, GANs
- Retrieval-Augmented Generation (RAG)
- Time-Series Analysis, Anomaly Detection, Feature Engineering
- Statistical Analysis, Model Evaluation & Monitoring
- 3D Motion Analysis, Quaternion-based Adaptive Kalman Filters, Sensor Fusion

MLOps & Infrastructure

- Vertex AI, Dataflow (Apache Beam), Airflow, Kubeflow
- Docker, Kubernetes, Cloud Run, Terraform, Git/GitHub, CI/CD
- Microservices Architecture, Infrastructure as Code

Product & Systems Thinking

- Requirements Definition, Roadmapping, Agile/Scrum
- Human-Centered AI Design
- Mentorship & Cross-Functional Collaboration

Cloud Platforms

- Google Cloud Platform (GCP)

SELECTED PROJECTS

Scai – Agentic Retrieval-Augmented AI Assistant *(2025)*

- Built a stateful, multi-turn RAG assistant (Gemini + GCP) trained on personal projects, goals, and FAQs.
- Supports semantic search, custom indexing, and conversational context memory.
- Agentic capabilities: can query a database, trigger actions, and send me proactive messages.

Gait Understanding Engine *(2021)*

- Developed deep encoder–decoder models to segment human gait from noisy time-series wearable data with 20 ms accuracy.
- Designed data collection, labeling, and retraining pipelines; deployed as Docker microservice on GCP.
- Backbone for 80% of downstream analytics features, enabling metrics like jump height, ground contact times, and stride analysis.

User Error Prediction & Correction Models *(2024)*

- Designed ML models to detect and correct user setup errors in wearable sensor placement and calibration.
- Includes orientation prediction system that reduced setup errors from 5% to 0.5%, directly improving product reliability and onboarding experience.

Fine-Grained Activity Recognition *(2024)*

- Built a 5M+ parameter deep model for nuanced athletic activity classification, achieving 99% jump detection accuracy.
- Overcame data scarcity by generating synthetic data via the Gait Understanding Engine.

Metric Ranking Neural Net *(2023)*

- Created a neural ranking model to prioritize user metrics based on relevance and context.
- Deployed as a Cloud Run microservice; increased engagement by surfacing high-value insights first.

Adaptive Orientation & Motion Estimation Suite *(2022–2023)*

- Combined quaternion-based adaptive Kalman filtering with predictive phase detection to estimate motion speed, distance, and optimal drift-correction timing without GPS.
- Enhanced estimation accuracy, reduced manual calibration, and enabled new performance analytics features.

EXPERIENCE

Lead Machine Learning Engineer – *Plantiga Technologies, Vancouver, BC*

Oct 2022 – Present

- Led full-stack ML product development, from conception to deployment, aligning solutions with business goals and user needs.
- Scaled training & deployment infrastructure on GCP to support rapid iteration and reliable delivery.
- Integrated ML features into customer-facing products, improving engagement and retention.

Machine Learning Engineer – *Plantiga Technologies, Vancouver, BC*

May 2018 – Sep 2022

- Designed & deployed time-series ML models and real-time analytics pipelines.
- Reduced pipeline runtime 30% via Apache Beam and Airflow optimizations.
- Supported product evolution through data-driven insights and close collaboration with product, biomechanist, and engineering teams.

Research Assistant – *Simon Fraser University, Vancouver, BC*

Jan 2016 – Sep 2019

- Developed a low-cost calibration algorithm for wearable sensors, improving accuracy in concussion research.
- Published in IEEE Sensors Journal; built working head-worn prototype for sports impact analysis.

EDUCATION

- MASc, Mechatronic Systems Engineering – Simon Fraser University, Vancouver, BC *(2016–2019)* | GPA 4.02
- BEng, Electronics – Dawood College of Engineering & Technology, Karachi, Pakistan *(2008–2012)* | GPA 4.0

PUBLICATIONS

- *An Algorithm for the In-Field Calibration of a MEMS IMU*, IEEE Sensors Journal, 2017
- *An Algorithm for Kinematics and Location Detection in Head Impacts*, Master's Thesis, 2019

INTERESTS

Human-AI Interaction, AGI, Biomechanics, Skiing, Travel