

Bashir Mohammed, PhD

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SUMMARY

I am a Senior Staff AI Architect at Intel's Network and Edge Group, where I lead cutting-edge innovations in AI at the Edge. My work focuses on developing and deploying Large Language Models (LLMs), Large Vision Models (LVMs), and Multi-agent workflows to drive transformative solutions across various industries. I collaborate closely with customers to understand their needs and pain points, providing customized solutions, and facilitating successful technology adoption. I hold a Ph.D. in Computer Science and bring extensive research experience from my previous role at Lawrence Berkeley National Lab, where I specialized in AI applications for intelligent networks, automatic control systems, quantum communication networks, and data provenance in high-performance computing and distributed systems.

EXPERIENCE

• Intel Corporation

Feb 2023 - Present

Senior Staff AI Architect, Office of the Chief Technology officer (OCTO)

Santa Clara, CA

- Currently working with Natural Language and Vision models, focusing on Large Language Models (LLMs), Large Vision Models (LVMs), Small Language Model (SLMs), while building Retrieval Augmented Generation (RAG) pipelines using well-known frameworks like Langchain and LlamaIndex
- Leading the Anti-hallucination effort, creating advanced prompt engines to reduce hallucination in LLM outputs and developing RAG Pipelines and agentic workflows tailored to customer needs.
- Engineered theft detection and video understanding proof of concept solutions using LVMs, LLMs, and multi-agentic frameworks for retail customers.
- Leveraging Gen-AI and LLMs to drive innovation within Intel's distributed edge infrastructure platform group.
- Architecting a versatile, AI-powered front-end interface for the Networking and Edge(NEX) Business Unit, catering to a wide range of users.
- Familiar and worked with NVIDIA's software libraries, platforms and frameworks such as Neural Module(NeMo), NVIDIA Inference Microservices(NIM), RAPIDS, CUDA, e.t.c.

• Lawrence Berkeley National Laboratory

June 2022 - Jan 2023

Computational Research Engineer/Scientist

Berkeley, CA

Key projects:

- CRD-NERSC Supporting Workflows: Focused on advancing intelligent scientific workflow data management at the National Energy Research Scientific Computing Center (NERSC), with an emphasis on real-time stream processing and data provenance, contributing to optimized and efficient scientific computing processes.
- QUANT-NET (Quantum Application Network Testbed for Novel Entanglement Technology): Developed a proof-of-concept quantum network linking Berkeley Lab and UC Berkeley, featuring entanglement swapping over optical fiber and managed by a quantum network protocol stack. Collaborated with leading experts from Berkeley Lab, UC Berkeley, and Caltech to demonstrate entanglement between small-scale quantum computers.
- Securing Automated, Adaptive Learning-Driven Cyber-Physical Systems: Built self-driving synthetic biology labs using ML processes and Bayesian ensemble modeling through the Automated Recommendation Tool (ART) to secure and optimize cyber-physical system processes.

• Lawrence Berkeley National Laboratory

April 2019 - May 2022

Postdoctoral Research fellow,

Berkeley, CA

- Worked on the "Large-scale Deep Learning for Intelligent Networks" project at Berkeley Lab, funded by the US Department of Energy, where I led and developed AI and ML algorithms to optimize the control of distributed network resources, enhance high-speed data transfers, and minimize network downtime for exascale scientific workflows. Achieved the Best Paper Award at the Machine Learning for Networking Conference.

• AI Collaborator, Inc

Jan 2021 - May 2022

AI Lead and Principal Technical Product Manager,

Los Angeles, CA

- Spearheaded the development and execution of the AI strategy, driving innovation across products and services, and ensuring alignment with business objectives and market trends.
- Oversaw the end-to-end product lifecycle, from ideation to launch, for AI-driven solutions, ensuring timely delivery, market fit, and customer satisfaction.
- Managed and mentored a cross-functional team of engineers, data scientists, and product managers, fostering a collaborative environment that maximized productivity and innovation.

• Nabafat.AI

Jan 2013 - Mar 2019

Head of AI and Lead Technical Program Manager,

Sacramento, CA

- Led the AI/ML department in developing cutting-edge machine learning algorithms, including supervised and unsupervised models, resulting in a 30% improvement in predictive accuracy for key business metrics.
- Led technical program management for AI initiatives, including resource allocation, risk assessment, and stakeholder communication, ensuring smooth execution of large-scale AI/ML deployments.
- Spearheaded the end-to-end design, development, and deployment of AI-driven solutions across multiple domains, including natural language processing (NLP), computer vision, and predictive analytics, enhancing operational efficiencies by 25%.
- Managed and delivered high-impact AI/ML projects, coordinating cross-functional teams of data scientists, engineers, and stakeholders to achieve project goals on time and within budget.
- Established a robust data infrastructure and pipeline architecture, automating data ingestion, cleansing, and feature engineering processes, reducing model training times by 40
- Provided technical leadership and mentorship to a team AI/ML engineers and data scientists, fostering a collaborative environment that accelerated innovation and knowledge sharing.

EDUCATION

- **University of Bradford, UK** Nov 2014 - July 2019
PhD in Computer Science, Advisors: Prof. Hassan Ugail and Prof. Irfan Awan UK
- **University of Sheffield, UK** Sep 2010 - Feb 2012
MSc in Control Systems Advisors: Prof. Peter Fleming and Dr. Andy Mills (Rolls Royce, UTC, Sheffield, UK) UK

SKILLS

- **Programming Languages:** Python, C, CSharp, Java, MATLAB, SQL.
- **Databases:** SQL, MongoDB, InfluxDB, Postgres, ChromaDB, Intel VDMS, Weaviate.
- **Packages and Libraries:** NumPy, SciPy, Pandas, TensorFlow, Keras, Theano, Caffe, PyTorch, NetworkX, PyTorch, SciKit-Learn, CUDA.
- **General Tools and Platforms:** Linux, Git, Shell Scripting.
- **Mathematics:** Strong foundation in Engineering Mathematics and Industrial Mathematics, with expertise in Control Systems, Differential Equations, Probabilistic and Statistical Modeling
- **Artificial Intelligence and Machine Learning:** Expertise in Gen-AI and Deep Learning - LLMs, LVMs, SLMs, RAG, Fine-Tuning, Prompt-Tuning, Prompt Engineering, Langchain, LlamaIndex, Haystack, Multi-Agent frameworks, CrewAI, LangGraph.
- **Predictive Modeling and Forecasting:** Time Series Forecasting and Statistical Modeling.

HONORS AND AWARDS

- **SIAM Science Policy Fellowship Award 2023** Jan 2023
Society of Industrial and Applied Mathematics (SIAM) [\[LINK\]](#)
◦ As a Science Policy Fellow, I actively represent the SIAM community to policymakers in Washington, D.C., advocating for the critical role of mathematics and computational science in shaping informed policy decisions.
- **Black and Brilliant and Codecademy AI Accelerator Coaching Award** Feb 2021
Codecademy [\[LINK\]](#)
◦ Selected as a Data Science and AI Coach for the Black and Brilliant AI Accelerator Course in partnership with Codecademy.
- **Black and Brilliant and Codecademy AI Accelerator Coaching Award** Feb 2021
Codecademy [\[LINK\]](#)
◦ Selected as a Data Science and AI Coach for the Black and Brilliant AI Accelerator Course in partnership with Codecademy.
- **Exceptional Talent Digital Technology UK Government Endorsement Award** Feb 2020
Tech Nation [\[LINK\]](#)
◦ Endorsed by the UK government as a World-Leading Expert in Digital Technology under the Exceptional Talent program.
- **Berkeley Lab Research SLAM Award Winner** Sep 2019
Lawrence Berkeley National Lab [\[LINK\]](#)
◦ I am honored to have earned second place in the prestigious Berkeley Lab Research SLAM contest.
- **Berkeley Lab Research SLAM Finalist** Sep 2019
Lawrence Berkeley National Lab [\[LINK\]](#)
◦ Selected as a finalist in the Berkeley Lab Research SLAM competition with 42 Scientist.
- **The IYPT Elemental Slam Award on Capitol Hill** Oct 2019
US Department Of Energy/ UC Berkeley [\[LINK\]](#)
◦ Winner of the Berkeley Lab Research SLAM and selected to represent Berkeley Lab at the IYPT Elemental Slam on Capitol Hill, where I had the privilege of presenting my research to legislators and a Capitol Hill audience. Notable attendees included Senators Lisa Murkowski (Alaska), Bruce Westerman (Arkansas), and Randy Weber (Texas).