

Hind Mukhtar

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Education

University of Ottawa , PhD in Electrical & Computer Engineering	Sept 2021 – Sept 2026
• Thesis: AI-Enabled Avionic Communications for Optimizing In-Flight Network Connectivity Experience	
University of Ottawa , Master in Electrical & Computer Engineering	Sept 2019 – May 2021
• Thesis: ML-Enabled Localization in 5G & LTE Networks Using Image Classification & Deep Learning	
Queen's University , Bachelor in Electrical Engineering	Sept 2014 – May 2019

Experience

Data Scientist , Gogo Air (Acquired Satcom Direct) – Ottawa, Ontario	Jan 2023 – Present
• Designed and deployed predictive ML models for satellite communication systems, including:	
– Sequence-to-sequence transformer forecasting network performance along flight paths	
– Signal-to-noise ratio (SNR) prediction model leveraging aircraft location and satellite coverage	
– Applied large language models (LLMs) to parse and process aircraft communication text logs, integrating unstructured data into predictive modeling workflows	
• Led company-wide AI initiatives, introducing ML solutions to optimize network performance and developing an internal AI/ML library to accelerate experimentation and training	
• Performed statistical analyses quantifying the impact of demand growth on satellite networks to support provider capacity planning	
• Architected real-time monitoring pipelines on Azure (Functions, Durable Functions, Blob Storage) enabling live metric tracking, anomaly detection, and proactive issue resolution	
• Integrated Prefect for orchestration, automating workflows, deployments, and pipelines across departments	
• Automated reporting pipelines (performance dashboards, usage reports, TAM analysis) to support data-driven decision-making across sales and leadership	
Hardware Engineer , Satcom Direct – Ottawa, Ontario	June 2019 – Jan 2023
• Designed and developed multi-layer RF circuit boards for avionic satellite communication systems	
• Simulated and optimized RF circuits in ADS, with focus on RF parameter tuning.	
• Designed multi-layer PCBs using Altium Designer	
• Created and executed test plans for RF systems; automated testing with Python and LabView	
• Collaborated with cross-functional teams (hardware, mechanical, software, systems) on design projects	

Publications

Network Performance Prediction in Avionic Communication using AI	July 2025
<i>Hind Mukhtar</i> , Raymond Schaub, Melike Erol-Kantarci	
arxiv.org/abs/2504.14443	
Air Traffic and Usage Predictions in Avionic Communications using Attention Based VAEGAN Model	May 2024
<i>Hind Mukhtar</i> , Raymond Schaub, Melike Erol-Kantarci	
ieeexplore.ieee.org/abstract/document/10625144	

Technical Skills

Programming & ML Frameworks: Python, PyTorch, TensorFlow, SQL, C/C++ (familiar)

Data Visualization: Power BI, Tableau, Plotly, Dash

Databases & Data Engineering: Microsoft SQL Server, Amazon Athena, Amazon S3, Azure Containers

Cloud Platforms: Microsoft Azure, Amazon AWS