

# MAHAM HAROON

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## Applied Data Science and Cyber Threat Modeling Expert

Applied Data Scientist and Cyber Threat Modeling specialist with a strong record of delivering high-impact machine learning solutions, large-scale analytics systems, and cyber-risk modeling frameworks. Experienced in architecting agentic AI platforms, developing predictive security models, and leading cross-functional data science initiatives across telecom, cybersecurity, and startup environments. Recognized internationally through multiple competitive data science medals, invited conference reviewerships, and global technology award judging appointments. Skilled communicator and published author with contributions read by millions across industry platforms.

### CORE COMPETENCIES

- Applied Machine Learning & LLMs
- Cyber Threat Modeling & Adversarial AI
- Predictive Modeling & Statistical Analysis
- Data Storytelling & Technical Writing
- Agentic Analytics Systems
- NLP & Multilingual Data Pipelines
- Big Data Engineering (AWS, Spark, ETL)
- Cross-Functional Collaboration
- Robotics & Intelligent Systems
- Systems Architecture & Prototyping

## PROFESSIONAL EXPERIENCE

**TELENOR GROUP, 2025 TO PRESENT**

### DATA SCIENCE CONSULTANT

- Lead data scientist driving analytical and modeling initiatives for the Telecom Marketing Analytics division.
- Designed **AnalytiQ**, an AWS-based agentic analytics platform enabling real-time conversational insights for business teams.
- Enhanced value segmentation pipelines using clustering and statistical optimization, improving national-scale targeting performance and campaign outcomes.
- Built scalable predictive frameworks and dashboards supporting executive decision-making.

**KUBERSIGNAL LLC, BOSTON, MA, 2022 TO PRESENT**

### FOUNDER / DATA SCIENTIST

- Founded cybersecurity-focused AI startup specializing in social engineering threat detection and applied machine learning solutions.
- Developed Scam-Ninja, an AWS-integrated mobile cybersecurity tool designed to identify and mitigate social engineering attacks.
- Delivered consulting projects including sentiment-rating engines, LLM pipelines, and AWS-based communication systems using Lambda, API Gateway, and CloudWatch.
- Managed distributed contractor teams focused on data collection, research, and content development.
- Negotiated pre-seed investment discussions; oversaw all strategy, technical development, and product architecture.

**BITSIGHT, BOSTON, MA, 2021 TO 2022**

### DATA SCIENTIST - THOUGHT LEADERSHIP

- Conducted advanced analytics research supporting cyber-risk intelligence and contributed to BitSight's widely distributed Insights publications.

- Built and deployed predictive models addressing ransomware likelihood, vulnerability exploitation viability, and cyber exposure estimation.
- Developed ETL and data-cataloging pipelines using Spark and Jenkins for large-scale cybersecurity datasets.
- Authored whitepapers and research reports referenced across industry risk assessments.

**LAKSON GROUP - SYBRID LIMITED, 2020 TO 2021**

### CONSULTANT / DATA SCIENTIST

- Led initial research and prototyping for multilingual brand sentiment analysis systems in English and Urdu.
- Leveraged social media data to build ML-based multilingual classification and clustering pipelines.

**UNIVERSITY OF MASSACHUSETTS, AMHERST, MA, 2017 TO 2021**

### TA / RA - CICS

- TA for courses including Artificial Intelligence, Reasoning Under Uncertainty, and Web Programming.
- Research assistant at DaROS Lab focusing on robotics, machine learning, and applied perception systems.
- Contributed to the MIT Mini-Cheetah robotic platform through locomotion and perception research.

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY 2016 TO 2017**

### TA / RA - SMME

- TA for Artificial Intelligence, Fuzzy Logic, Mobile Robotics, and general Robotics.
- Conducted research involving the NAO humanoid robot, autonomous mobility systems, and assistive robotics.

**PTCL 2014 TO 2015**

### Telecom Engineer

- Monitored telecom network data, reported outages, and analyzed system fault patterns.
- Prepared technical reports and summaries for operational stakeholders.

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## COMPETITIONS & ACHIEVEMENTS

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- **Silver Medal**, Kaggle Santa 2024 (1,500+ participants) – Text perplexity optimization using hybrid evolutionary and LLM-driven algorithms.
  - **Bronze Medal**, EEDI “Mining Misconceptions” Challenge 2024 + **13th place (Efficiency)** – LLM-based educational diagnostics system (Gates Foundation–sponsored competition).
  - **Silver Medal**, Kaggle Santa 2023 (1,000+ participants) – Permutation-solving algorithms for Rubik’s Cube, Wreath, and Globe puzzles.
  - **Bronze Medal**, DEFCON 31 AI Village CTF (1,000+ participants) – Adversarial ML tasks involving LLM prompt injection, image misclassification, steganography, and feature extraction.
  - **Kaggle Competitions Expert (Top 0.5% worldwide)**, 2025.
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## HONORS & APPOINTMENTS

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- Reviewer, **Cognitive Science Conference (CogSci) 2025**.
  - Judge, 2025 Globee AI Awards; 2025 Stevie Awards for Women in Business (Marketing).
  - Judge, 2024 Timmy Awards; 2024 SIIA CODiE Awards; 2024 Globee IT Awards; 2024 Stevie Awards.
  - Judge for multiple global award programs (2022–2023) including innovation, cybersecurity, and business categories.
  - President’s Gold Medal (2018).
  - Inclusion RSS@18 Fellowship, Carnegie Mellon University (2018).
  - ICT Endowment Scholarship (2016–2017).
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## PUBLICATIONS

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### Scientific Research

- Haroon, M. *What to Prune and What Not to Prune at Initialization*. arXiv (2022).

### Whitepapers & Industry Reports

- Navigating the Data Privacy Paradox
- Mobile Application Risk Report
- Cyber Incident Disclosure Analysis
- Various cybersecurity and risk-modeling reports for BitSight

### Whitepapers & Cybersecurity Reports (BitSight & Independent)

- Russia–Ukraine and the Cyber Threat Landscape
- Apache Risk Analysis and CISA Vulnerability Priorities

### Peer-Reviewed Editorial Publications (Towards Data Science, AI Advances)

- Understanding AUC in Depth
  - Pixel Attacks in Image Classification
  - Beta Distributions in Bayesian Calibration
  - Counterfactual Insights & Causation
  - Cognitive Biases in Data Science
  - DeepMind Gemini & MMLU Analysis ...and others.
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## PAST ACADEMIC PROJECTS

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- **TinyNets**: Parallel neural nets reducing parameters by 99.97% with a 97.76% reduction in test-time latency.
  - **P-Sparse Nets**: Eliminated 83% of redundant neural network parameters during early training.
  - **Autoencoder Distinctive Capability**: Feature relationship learning in images.
  - **Grammatical Error Correction**: Word-to-pixel encoding for NLP tasks.
  - **Master’s Thesis**: *Bidirectional Neural Networks for Simultaneous Place and Object Classification*.
  - **Bachelor’s Thesis**: *FPGA-Based Visual Object Tracking*.
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## EDUCATION

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**MS, Computer Science (PhD Candidate)** — University of Massachusetts Amherst  
**MS, Robotics & Intelligent Machine Engineering** — NUST (Top of Class)  
**BS, Electrical Engineering** — PIEAS

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## CERTIFICATIONS

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- AWS Certified Solutions Architect – Professional
  - Certified Ethical Hacker (CEH Master, Theory 113/125, Practical 20/20)
  - Business Foundations for Scientists & Engineers (Isenberg School of Management)
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## TECHNICAL SKILLS

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Python, PyTorch, TensorFlow, AWS, Spark, SQL, Git, Jenkins, NLP, Bayesian Modeling, LLM pipelines, ML Ops, Tableau, MATLAB, Scikit-learn, Big Data Analytics.