Hammad Ahmad Usmani

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Top 1% in Python based on HackerRank Python Leaderboard

Experience

- **Senior AI & Machine Learning Engineer** Lockheed Martin Space *2021 - 2023*
  - Led the AI & ML for a search engine processing big data through Tensorflow, Pytorch, AWS, and Azure
  - Search product reduced an estimated $700k per space vehicle per year from supply chain study data
  - Deployed AI, web applications, dashboards, and data science for Space and Corporate lines of business
  - Engineered original 24/7 data pipelines with 99.99% uptime from NASA's TRL operational standards
  - Fine-tuned neural networks and statistical models through cross-validation and hyperparameter search
  - Integrated IBM Watson for search, translation, speech recognition, and vision to cloud apps using Python
  - Trained and specialized question-answering models through RLHF from the SqUAD data for dispositions
  - Collaborated as lead data scientist creating machine learning models by utilizing Tensorflow & PyTorch
  - Integrated end-to-end frameworks with CI/CD, Git, Docker, Kubernetes, REST APIs, and web UIs
  - Produced & maintained machine learning algorithms with Python, Spark, SQL, PyTorch, Tensorflow
- **Machine Learning Engineer** Moody's *2019 - 2021*
  - Deployed machine learning model assets and LLMs for NYSE sentiment analysis and financial reporting
  - Engineered data processing that coordinated natural language processing from teams utilizing PyTorch
  - Solved analytics and data engineering problems on Azure & Google Cloud Platform with Tensorflow
  - Innovated server-less and containerized solutions to deploy and scale ML models with continuous training
  - Developed natural language processing with Python, Spark, SQL, deep learning, and language models
  - Specialized in deep learning techniques, including RNNs, CNNs, transfer learning, and cluster analysis
  - Improved AUC scores by 14% on recommendation problems using deep learning and ETL processes
  - Engineered a data lake infrastructure on AWS Athena, ECS, ECR, EMR, and S3 using Scala & Python
  - Developed automated sentiment analysis of NYSE utilizing deep learning from investors social media
- **Machine Learning & Software Engineer** MIT *2018 - 2019*
  - Conducted MLOps, data processing, data science, and machine learning for advanced weather problems
  - Innovated deployment of machine learning on the Azure & AWS cloud realtime globally with Tensorflow
  - Developed software to continuously monitor machine learning performance based on quality requirements
  - Engineered solutions using Python, JavaScript, and SQL with cloud computing to operationalize AI
  - Implemented lossless compression technique to reduce model output size by 99.2% in near real-time
  - Collaborated on the 2018 Best Paper Award from innovations in machine learning and neural networks
- **Data Scientist** Simpluris *2017 - 2018*
  - Completed 200+ big data cases as a lead data analyst utilizing with SQL, Python, PyTorch, & Tensorflow
  - Developed natural language processing algorithms for geospatial data based on input address on Azure
  - Produced and calculated analysis with SSRS reports using SQL and Excel for class action lawsuits
  - Improved efficiency of API parsing algorithm by 97% from linear to logarithmic to linear growth
  - Developed duplication detection algorithm incorporating Levenshtein Distance in Python and Scala
- **Machine Learning Engineer** SHAMAN *2015 - 2016*
  - Achieved multiple National Science Foundation Innovation Corps grants for IoT and big data analytics
  - Invented algorithms with Python on deep neural networks consisting of chat capabilities for NFC tags
  - Engineered microcontroller prototyping boards with RFID and NFC IoT functionalities in Java, C/C++
  - Coordinated data sourcing, labeling, and acquisition from international translators for multilingual chat
  - Discovered novel algorithms in deep learning to forecast hurricanes and tropical storms with LSTM's

Education

- **Georgia Institute of Technology** — Atlanta, GA US
  Master of Science in Computer Science
- **University of Central Florida** — Orlando, FL US
  Bachelor of Science in Computer Science

Certifications

- **Microsoft**
  Azure AI Engineer Associate — *2024*
- **Google**
  Generative Artificial Intelligence, Machine Learning, Vertex AI — *2023*
- **Harvard Business School**
  CORe Credential of Readiness, Certificate in Entrepreneurship Essentials — *2020*

Skills

- **Machine Learning**: Forecasting, Neural Networks, Fine-Tuning, MLOps, GenAI, Meta Llama, ChatGPT
- **Programming Languages**: Python, Javascript, Java, C#, SQL, Unity, Oculus VR, iOS, Android, React
- **Data Engineering**: ETL/ELT, NLP, Large Language Models, CI/CD, Tensorflow, PyTorch, Sagemaker
- **Cloud Computing**: AWS, Azure, DataBricks, GCP, Snowflake, Tableau, Docker, PowerBI, OpenAI

Publications

- Patel, A. B., **Usmani, H.**, & Brant, J. C. (2021). *Multivariate LSTM approach to hurricane intensity and tracking predictions.* 101st American Meteorological Society Annual Meeting. https://ams.confex.com/ams/101ANNUAL/meetingapp.cgi/Paper/380154
- **Usmani, H.**, Habibi, A., & Habibi, D. (2020). *A deep neural network to globally forecast the track and intensity of tropical cyclones.* 100th American Meteorological Society Annual Meeting. https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Paper/370104
- Veillette, Mark S, Iskenderian, H., Lamey, P. M., Mattioli, C. J., Banerjee, A., Worris, M., Proschitsky, A. B., Ferris, R. F., Manwelyan, A., Rajagopalan, S., **Usmani, H.**, T. E. Coe, J. E. Luce, and B. A. Esgar. (2020). *Global synthetic weather radar in AWS GovCloud for the US Air Force.* 100th American Meteorological Society Annual Meeting. https://ams.confex.com/ams/2020Annual/webprogram/Paper363150.html
- Iskenderian, H., Veillette, M. S., Mattioli, C. J., Lamey, P. M., Hassey, E. P., Banerjee, A., Worris, M., Cancio, K., Rajagopalan, S., **Usmani, H.**, Dreher, J. P., Hock, N., & Radovan, J. (2019). *Global synthetic weather radar capability in support of the U.s. air force.* 99th American Meteorological Society Annual Meeting. https://ams.confex.com/ams/2019Annual/meetingapp.cgi/Paper/355542
- **Usmani, H.** (2019). *A deep recurrent neural network to forecast the intensity and trajectory of Atlantic tropical storms.* 99th American Meteorological Society Annual Meeting. https://ams.confex.com/ams/2019Annual/webprogram/Paper353476.html
- Almalki, H. M., Rabelo, L., Davis, C., **Usmani, H.**, & Hollister, D. (2016). *Analyzing the existing undergraduate engineering leadership skills.* SYSTEMICS, CYBERNETICS AND INFORMATICS. http://www.iiisci.org/Journal/pdv/sci/pdfs/MA302FK16.pdf