Hammad Ahmad Usmani

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Top 1% in Python

Experience

- **Senior AI & Machine Learning Engineer.** Lockheed Martin Space (NYC, NY) *Feb. 2021 - Sept. 2023*
  - Led the ML & data science for a search engine processing big data on AWS cloud and Domino Data Lab.
  - Implemented natural language processing to analyze big data and machine learning in Python and Spark.
  - Deployed end-to-end LLM question-answering and machine translation with Python and Java with RLHF.
  - Engineered data pipelines achieving top operational standards from NASA's Technical Readiness Level.
  - Fine-tuned neural networks and statistical models through cross-validation and hyperparameter search.
  - Integrated IBM Watson for translation, speech recognition, and vision along with Vertex AI from Google.
  - Trained and scaled question-answering models through transfer learning based on the SqUAD dataset.
  - Collaborated as lead data scientist creating machine learning models for internal and external purposes.
  - Coordinated data collection and acquisition efforts to train LLM models based on business requirements.
  - Integrated end-to-end frameworks with CI/CD, Git, Docker microservices, REST APIs, and web UIs.
  - Produced & maintained machine learning algorithms with Python, Spark, SQL, and cloud computing.
- **Machine Learning Engineer.** Moody's (NYC, NY) *Dec. 2019 - Feb. 2021*
  - Deployed machine learning model assets and LLMs for NYSE sentiment analysis and financial reporting.
  - Engineered data processing that coordinated natural language processing from international teams.
  - Solved analytics and data engineering problems on Google Cloud Platform (GCP) with BigQuery.
  - 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.** M.I.T. (Lexington, MA) *Apr. 2018 - Dec. 2019*
  - Conducted MLOps, data processing, data science, and machine learning for advanced weather problems.
  - Innovated deployment of machine learning on the AWS cloud in realtime for a global domain.
  - 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 (Orlando, FL) *Jan. 2017 - Apr. 2018*
  - Completed 200+ big data cases as a lead data analyst utilizing with SQL, Python, VBA, and Excel.
  - Developed natural language processing algorithms for geospatial data based on input address.
  - 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 (Orlando, FL) *Oct. 2015 - Dec. 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.

Education

- **Georgia Institute of Technology** — Atlanta, GA
  Master of Science in Computer Science. — *2023*
- **University of Central Florida** — Orlando, FL
  Bachelor of Science in Computer Science. — *2016*

Certifications

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

Overview

- A Data Scientist & Machine Learning Engineer with advanced scientific degrees and professional experience.
- Ships end-to-end machine learning, computer vision, speech recognition, translation, and others in the cloud.

Skills

- **Programming Languages**: Python, Scala, Java, C/C++, SQL, Tensorflow, scikit-learn, PyTorch, CI/CD
- **Data Engineering**: Natural Language Processing, Large Language Models, RLHF, SFT, ELT, ETL
- **Cloud Computing**: AWS, Azure, DataBricks, Google Cloud, GCP, Spark, Tableau, Docker, 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