Hammad Ahmad Usmani

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EXPERIENCE

- **Senior Artificial Intelligence Research Engineer.** Lockheed Martin (NYC, NY) *Feb. 2021 - Present*
  - Engineered search engine processing unstructured data from multiple sources yielding cost reductions.
  - Developed automated data extraction, transformation, and loading (ETL) using Python, Spark, & Java.
  - Created machine learning solutions including large language models, clustering, and neural networks.
  - Deployed data science pipelines with SQL, Python, NLP, ElasticSearch, Flask, TensorFlow, and PyTorch.

- **Software & Data Engineer.** Moody's Analytics (NYC, NY) *Dec. 2019 - Feb. 2021*
  - Developed algorithms, data processing pipelines, Spark, SQL, deep learning, and large 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.
  - Created a data lake infrastructure on Athena, ECS, ECR, EMR, and S3 using Scala & Python.

- **Software Engineer.** Massachusetts Institute of Technology (Lexington, MA) *Apr. 2018 - Dec. 2019*
  - Conducted R&D, data processing, data analysis, and machine learning for advanced weather problems.
  - Engineered solutions using Python, TensorFlow, Java, JavaScript, and SQL with cloud computing.
  - Implemented lossless compression technique to reduce model output size by 99.2% in near real-time.
  - Earned the 2018 Best Paper Award with geographical information system and mapping contributions.

- **Data Scientist.** Simpluris (Orlando, FL) *Jan. 2017 - Apr. 2018*
  - Completed 200+ big data projects as a lead data analyst coordinating with clients and law firms.
  - Produced and calculated analysis with SSRS reports using SQL and Excel for class action lawsuits.
  - Improved efficiency of API parsing algorithm by 97% from $O(n)$ to $O(\log(n))$ using batch processing.
  - Developed duplication detection algorithm incorporating Levenshtein Distance in Python and Scala.

- **Software Engineer.** Shaman (Orlando, FL) *Oct. 2015 - Dec. 2016*
  - Achieved multiple National Science Foundation Innovation Corps grants for IoT and big data analytics.
  - Developed software on customer relationship management platforms, including SAP, Oracle, and Python.
  - Invented a computer algorithm with deep neural networks consisting of chat capabilities for NFC tags.
  - Engineered microcontroller prototyping boards with RFID and NFC IoT functionalities in Java, C/C++.

EDUCATION

Georgia Institute of Technology	Atlanta, GA
Master of Science in Computer Science, Specialization in Machine Learning	*2017 - 2023*
University of Central Florida	Orlando, FL
Bachelor of Science in Computer Science, Minor in Business Administration	*2011 - 2016*

CERTIFICATIONS

Google Cloud	
Generative Artificial Intelligence, Machine Learning	*2023*
Harvard Business School	
CORe Credential of Readiness, Certificate in Entrepreneurship Essentials	*2020*

SKILLS

- **Programming Languages**: Python, Scala, Java, C/C++, SQL, ElasticSearch, JavaScript, Shell, CI/CD
- **Data Engineering**: Machine Learning, Natural Language Processing, Large Language Models, Statistics
- **Cloud Computing**: AWS, Azure, DataBricks, Google Cloud, Spark, Tableau, Linux, Docker, gRPC

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

Overview

- A Data Scientist & Artificial Intelligence Engineer with advanced scientific degrees and professional experience.
- Produces full-stack Python apps, machine learning, computer vision, and large language models in the cloud.