

# Hammad Ahmad Usmani

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## EXPERIENCE

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- **Senior Artificial Intelligence Engineer.** Lockheed Martin (NYC, NY) *Feb. 2021 - Sept. 2023*
  - Engineered cognitive search engine to process historical data on the cloud for the Artemis space program.
  - 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.
- **Machine Learning 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 AWS 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

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- **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

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

## SKILLS

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- **Programming Languages:** Python, Scala, Java, C/C++, SQL, Tensorflow, scikit-learn, PyTorch, CI/CD
- **Data Engineering:** Machine Learning, Natural Language Processing, Large Language Models, Statistics
- **Cloud Computing:** AWS, Azure, DataBricks, Google Cloud, Spark, Tableau, Linux, Docker, Snowflake

## PUBLICATIONS

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- 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

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- 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.