

# Abdul Rahman Shaikh

**Portfolio:** [sabdulrahman.github.io/](https://github.com/sabdulrahman)

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## SUMMARY

Ph.D. candidate in Computer Science with experience designing and deploying advanced machine learning models and AI systems. Proficient in modern frameworks like LangChain, PyTorch, Llama, and Hugging Face. Experienced in generative AI, computer vision, and NLP, focusing on creating innovative scalable, real-world solutions.

## EDUCATION

- Northern Illinois University** DeKalb, Illinois  
• *Ph.D. and M.S. in Computer Science* May 2025

## SKILLS SUMMARY

- **Prog. Languages** Python, R, JavaScript, C, C++, Java, HTML/CSS, LaTeX
- **AI/ML Frameworks** TensorFlow, PyTorch, Keras, OpenCV, SHAP, Transformers, HuggingFace
- **Tools & Libraries** Pandas, NumPy, Matplotlib, Seaborn, Plotly, LDA, BERT, SpaCy
- **Cloud & DevOps** AWS, Azure, Docker
- **Web Development** React, Node.js, Express.js, D3.js
- **Databases** MySQL, MongoDB, PostgreSQL, SQLite

## EXPERIENCE

- Northern Illinois University (DATA Lab, VA Lab & WASTE Lab)** DeKalb, IL  
• *Researcher* Jan 2018 - Present
  - Led the design of advanced ML pipelines using Vision Transformers, Diffusion Models, and Mixtral-8x7B, GPT-4V, and Claude-3, driving breakthroughs in predictive modeling and generative AI.
  - Architected and deployed an LLM-powered cross-view visualization framework, reducing data exploration time by 35%, improving insight discovery rates by 45%, and facilitating decision-making for 25+ participants in user studies.
  - Developed domain-specific applications using Hugging Face Transformers and LoRA fine-tuning for image captioning and contextual text generation, enhancing model accuracy on specialized datasets.
  - Implemented cutting-edge algorithms like CLIP, SAM, and GPT for tasks ranging from semantic segmentation to domain-specific text generation.
- Amazon** India  
• *Quality Specialist* Aug 2017 - Dec 2017
  - Implemented SQL and MongoDB pipelines to optimize data querying for performance bottlenecks.
  - Utilized Python libraries (Pandas, NumPy, Scikit-learn) to perform detailed data cleansing, exploratory analysis, and quality assurance, significantly enhancing the reliability of critical datasets.

## PROJECTS

- **LLMFlow: Summarization of Scholarly Documents (Python, LangChain)** Integrated GPT with LangChain to generate concise summaries of large-scale research documents, reducing reading time for academics. (Jun 2024 - Dec 2024)
- **MixArt: Generative Artwork with Stable Diffusion (Python, Stable Diffusion, LoRA)** Developed a pipeline for generating abstract and photorealistic art using Stable Diffusion, leveraging LoRA fine-tuning to personalize outputs for user-requested styles. (Jan 2024 - July 2024)
- **VoxCore: Voice Authentication System (Python, Whisper, PyTorch)** Implemented a voice authentication system using OpenAI's Whisper for transcription and custom PyTorch models for speaker verification, achieving 89% accuracy in multi-speaker environments. (June 2023 - Sep 2023)
- **InstaHealth: Fine-Tuning Caption Generation for Instagram Posts (Python, CV)** Fine-tuned a language model to generate context-aware captions for health-related content on Instagram data, automating large-scale social media captioning. (Aug. 2022 - Dec 2022)

## PUBLICATIONS

- **A. R. Shaikh**, H. Alhoori, and M. Sun, "YouTube and Science: Models for Research Impact," *Journal of Scientometrics*, 2022.[doi: 10.1007/s11192-022-04574-5]
- **A. R. Shaikh**, M. Sun, and H. Alhoori, "Toward systematic design considerations of organizing multiple views," *IEEE Visualization and Visual Analytics (VIS)*, 2022. [doi: 10.1109/VIS54862.2022.00030]
- M. Sun, **A. R. Shaikh**, H. Alhoori, and J. Zhao, "SightBi: Exploring Cross-View Data Relationships with Biclusters," *IEEE TVCG 2021*, [doi: 10.1109/TVCG.2021.3114801] **Best Paper Honorable Mention.**  
For a complete list of publications, please visit - **Scholar profile** or **Website**

## TEACHING/LEADERSHIP

- **Mentor at NIU WASTE LAB** DeKalb, IL, USA  
• *Mentored and supervised 5 graduate students resulting in 3 research papers.* Jan 2024 - Present
- **Lab Head at NIU VA LAB** DeKalb, IL, USA  
• *Architect and Led multiple projects related to exploration using multiple view visualizations.* Aug 2021 - Present
- **Teaching Assistant at NIU** DeKalb, IL, USA  
• *Teaching Assistant for C++ and Databases courses.* Aug 2018 - May 2020