Nagur Shareef Shaik

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Career Profile

Experienced Computer Science professional with over 3 years of industry and research experience, adept in developing intelligent enterprise solutions. Proficient in RESTful web services, Spring Boot, SQL, and stored procedures, along with expertise in configuring event-driven batch jobs through Kafka and leveraging AWS services for scalable cloud-native applications. Holds an impressive portfolio of 17 research publications (14 Journals, 3 Conference proceeding) in the field of Artificial Intelligence & Machine Learning, demonstrating a strong commitment to advancing knowledge. Equally comfortable and open to opportunities in both Software Engineering and Machine Learning domains, with a proven track record of success in both areas.

Education

Georgia State University **Aug. 2023 – May. 2024 (Expected)**
Masters of Science (Thesis) in Computer Science - CGPA 4.0/4.0 *Atlanta, GA, USA*

Vignan's Foundation for Science, Technology & Research University **Jun. 2016 – May 2020**
Bachelors of Technology (Honours) in Computer Science & Engineering - GPA 3.92/4.0 *Andhra Pradesh, India*

Professional Experience

Translational Research in Neuroimaging & Data Science (GT, GSU & Emory) **Jan. 2024 – Present**
Research Assistant at TReNDS Center *Atlanta, GA, USA*

- **Multi-Modal Imaging Genomics Transformer:** Pioneered a fusion model combining genomics with sMRI and fMRI, elevating schizophrenia diagnosis accuracy by **2.12%** and uncovering vital neuro-genetic markers.
- **Multi-Modal Medical Transformer:** Designed a vision-language model integrating retinal image features with clinical keywords, resulting in a **13.5%** increase in BLEU-4 score over GPT-2 for diagnostic report generation.
- **Guided Context Gating:** Innovated an advanced attention model that optimizes context learning in retinal images, amplifying diagnosis accuracy by **2.63%** over advanced attention methods and **6.53%** over Vision Transformers.
- **Spatial Sequence Attention Network:** Formulated a unique attention mechanism to highlight schizophrenia-specific regions in brain sMRI, increasing diagnostic accuracy by **6.52%** and providing critical neuroanatomical insights.
- **Cancer Assist:** Developed a ML framework for an intra-operative intelligent system aiding surgeons in cancer surgery.

MORSE Studio at GSU **Aug. 2023 – Dec. 2023**
Research Assistant *Atlanta, GA, USA*

- **Dynamic Object Detection:** Investigated and employed Neuromorphic camera to capture dynamic visual data and analyzed it to draw valuable insights to detect objects at long sight.
- **Robot Code Deployer:** Automated the build and deployment process of Arduino code to remote robot systems through SSH, enhancing efficiency and ensuring seamless updates.

Carelon Global Solutions (subsidiary of Elevance Health) **Sep. 2022 – Aug. 2023**
Software Engineer III | Developer *Hyderabad, Telangana*

- **COmpensation INcentive System:** Developed RESTful APIs for high-performance microservices-based application to validate, compute and pay incentives using Java and Spring Boot, adhering standard coding practices in agile way.
- **Data Cleaning:** Automated transactions data clean-up using Python & SQL improving operational efficiency and saving 20% of incentive over payments.
- Swiftly resolved critical production issues, preventing 20% potential revenue loss and ensuring seamless operations.

Tata Consultancy Services **Aug. 2020 – Sep. 2022**
Software Engineer | Analytics & Insights *Hyderabad, Telangana, India*

- **Jeopardy Automator:** Developed an automated bug root cause prediction system with an Attention-based LSTM in Azure ML Studio, cutting debugging time by **60%**, driving cost-efficient resource allocation & development cycles.
- **Order Data Orchestrator:** Optimized data pipelines to streamline order orchestration, reducing fallouts by **30%** and ensuring seamless real-time data flows across hybrid IT environments.
- **Operational Dashboards:** Achieved a **$3M** revenue profit increase through enhanced operational transparency and data-driven decision-making enabled by interactive dashboards visualizing order trends and business insights.
- **Auto Deployer:** Architected Azure DevOps Model Deployment pipeline, achieving a **40%** reduction in deployment time and increasing system availability by **25%** for streamlined Machine Learning model artifacts deployment.

Technical Skills

Programming Languages: Python, Java, JavaScript, Structured Query Language (SQL)

AI & Machine Learning: PyTorch, TensorFlow, Keras, Scikit-learn, OpenCV, NLTK, SpaCy, NumPy, Pandas, Tableau, Matplotlib, Deep Learning (Neural Networks, Transformers, LLMs), Computer Vision, Natural Language Processing (NLP)

Web Technologies: Spring Boot, Microservices, REST APIs, Databases, Git, Bitbucket, Agile, Jira, SDLC

Cloud & Deployment: Azure DevOps, AWS Services, Azure ML Studio, MLFlow, CI/CD, Docker, Jenkins, Kubernetes

Research Interests: Attention Neural Networks, Vision Language Models, Multi-modal Fusion, Medical Image Analysis

Certifications: Microsoft Certified Azure AI Fundamentals, Deep Learning Specialization, Python for Everybody

Academic / Research Projects

Retinal Image Clinical Description Generator | *Python, Flask, MySQL, TensorFlow, Deep Learning* **Jun 2023**

- In this project, we designed a Gated contextual attention based Transformer to generate clinical findings from multi-modal retinal images to improve medical decision-making and patient care.

Retinal Health Diagnostics - Intelligent CAD System | *Python, Flask, MySQL, TensorFlow, Deep Learning* **Jan. 2022**

- In this project, we designed and implemented a deep learning based architecture for automatically diagnosing retinal diseases including cataracts, diabetic macular edema, diabetic retinopathy from digital fundus images of retina. This application generates a report with diagnosis details and preliminary clinical recommendations along with the markers involved in making clinical decisions.

Recruit Right | *Java, Spring Boot, SQL, Maven* **May 2021**

- In this project, we designed a job portal where recruiters can easily identify and hire top profiles matching their needs and requirements. This application handles initial resume screening, interview scheduling and feedback reporting which are major aspects of hiring process

Multi-lingual Neural Machine Translation | *Python, TensorFlow, Deep Learning, NLP* **Jan. 2020**

- In this project, we design and implement a attention based sequence to sequence model which takes a English sentence as input and predict the translation of the into French, German and Hindi languages. We used Anki bilingual sentence pairs dataset for our experiments.

Birthday Greetings App | *Java, Spring Boot, JSP, MySQL, HTML, CSS, JS* **Apr. 2019**

- In this project, we designed a Web Application that facilitates the end users to convey their wishes to friends by sending a greeting card to their email.

Online Examination System | *Java, Servlets, JSP, JDBC, MySQL, HTML, CSS, JS* **Dec. 2018**

- In this project, we designed a Web Application which facilitates the organization to conduct objective questions based examinations in online mode.

Research Experience

- Published innovative research in **14** high-impact **journals** and presented findings at **3** top-tier **conferences**, pioneering novel attention networks, multi-modal fusion techniques, and transformer-based vision-language models for applications in medical image classification and diagnostic report generation demonstrating advancements of AI in Medicine. **Google Scholar**
- Reviewed for 15 international journals, including IEEE Access, IEEE Transactions on Medical Imaging Computers in biology and medicine, and more; *Click here*

Professional Certifications

- **Microsoft Certified Azure AI Fundamentals** Course offered by **'Microsoft'**.
- **Building Deep Learning Models with Tensor Flow** Course offered by **'IBM'** through Coursera.
- **Deep Learning Part-1** Course with Elite–Silver offered by *'IIT-Madras'* through NPTEL.
- **Neural Networks and Deep Learning** Course offered by *'deeplearning.ai'* through Coursera.
- **Convolutional Neural Networks** Course offered by *'deeplearning.ai'* through Coursera.
- **Structuring Machine Learning Projects** Course offered by *'deeplearning.ai'* through Coursera.
- **Python for Everybody** Python Specialization Course offered by *'University of Michigan'* through Coursera.
- **Business English Communication (Vantage)** Test in 2018 conducted by *'Cambridge University'*.

Awards & Recognitions

- Received **Go Above - Impact** Award for analysing the complete code-base and fixing a critical issue from *Elevance Health* while working at *Carelon Global Solutions*
- Received **Star Performer** Award for extreme Contributions in Project Work from *Tata Consultancy Services*
- Received **Chairman's Gold Medal** Award for overall excellence throughout B.Tech from Vignan's Foundation for Science, Technology & Research University
- Received **Best Outgoing Student of CSE** Award for academic and research excellence throughout B.Tech from *Vignan's Foundation for Science, Technology & Research University*
- Received **Academic Excellence Award** continuously for all four years during B.Tech, as a recognition for being one of the top 5 rank holders of CSE, from *Vignan's Foundation for Science, Technology & Research University*
- Bagged multiple prizes in Technical Project Expo & Paper Presentation events at National-level Inter University Competitions throughout four years of my B.Tech

Research Publications

[1] Teja Krishna Cherukuri, Nagur Shareef Shaik, and Dong Hye Ye. "Guided Context Gating: Learning to Leverage Salient Lesions in Retinal Fundus Images". In: *Proceedings of the IEEE International Conference on Image Processing (ICIP)*. Paper ID: 1605. 2024.

[2] Nagur Shareef Shaik and Teja Krishna Cherukuri. "Gated contextual transformer network for multi-modal retinal image clinical description generation". In: *Image and Vision Computing* 143.C (2024).

[3] Nagur Shareef Shaik, Teja Krishna Cherukuri, and Dong Hye Ye. "M3T: Multi-Modal Medical Transformer to Bridge Clinical Context with Visual Insights for Retinal Image Medical Description Generation". In: *Proceedings of the IEEE International Conference on Image Processing (ICIP)*. Paper ID: 1604. 2024.

[4] Nagur Shareef Shaik et al. "Medtransnet: advanced gating transformer network for medical image classification". In: *Machine Vision and Applications* 35.4 (2024), p. 73.

[5] Nagur Shareef Shaik et al. "Spatial Sequence Attention Network for Schizophrenia Classification from Structural Brain MR Images". In: *Proceedings of the 21st IEEE International Symposium on Biomedical Imaging*. IEEE. 2024.

[6] Nagur Shareef Shaik and Teja Krishna Cherukuri. "Hinge attention network: A joint model for diabetic retinopathy severity grading". In: *Applied Intelligence* (2022), pp. 1–17.

[7] Nagur Shareef Shaik and Teja Krishna Cherukuri. "Visual attention based composite dense neural network for facial expression recognition". In: *Journal of Ambient Intelligence and Humanized Computing* (2022), pp. 1–14.

[8] Jyostna Devi Bodapati, Nagur Shareef Shaik, and Veeranjaneyulu Naralasetti. "Composite deep neural network with gated-attention mechanism for diabetic retinopathy severity classification". In: *Journal of Ambient Intelligence and Humanized Computing* (2021), pp. 1–15.

[9] Jyostna Devi Bodapati, Nagur Shareef Shaik, and Veeranjaneyulu Naralasetti. "Deep convolution feature aggregation: an application to diabetic retinopathy severity level prediction". In: *Signal, Image and Video Processing* (2021), pp. 1–8.

[10] Jyostna Devi Bodapati et al. "Joint training of two-channel deep neural network for brain tumor classification". In: *Signal, Image and Video Processing* 15.4 (2021), pp. 753–760.

[11] Jyostna Devi Bodapati et al. "MSENet: Multi-Modal Squeeze-and-Excitation Network for Brain Tumor Severity Prediction". In: *International Journal of Pattern Recognition and Artificial Intelligence* (2021), p. 2157005.

[12] Nagur Shareef Shaik and Teja Krishna Cherukuri. "Lesion-aware attention with neural support vector machine for retinopathy diagnosis". In: *Machine Vision and Applications* 32.6 (2021), pp. 1–13.

[13] Nagur Shareef Shaik and Teja Krishna Cherukuri. "Multi-level attention network: application to brain tumor classification". In: *Signal, Image and Video Processing* (2021), pp. 1–8.

[14] Nagur Shareef Shaik and Teja Krishna Cherukuri. "Transfer learning based novel ensemble classifier for COVID-19 detection from chest CT-scans". In: *Computers in Biology and Medicine* (2021), p. 105127. ISSN: 0010-4825. DOI: https://doi.org/10.1016/j.compbiomed.2021.105127.

[15] Jyostna Devi Bodapati et al. "Blended multi-modal deep convnet features for diabetic retinopathy severity prediction". In: *Electronics* 9.6 (2020), p. 914.

[16] Venkatesulu Dondeti et al. "Deep Convolution Features in Non-linear Embedding Space for Fundus Image Classification". In: *Revue d'Intelligence Artificielle* 34.3 (2020), pp. 307–313.

[17] Jyostna Devi Bodapati, N Veeranjaneyulu, and Nagur Shareef Shaik. "Sentiment Analysis from Movie Reviews Using LSTMs." In: *Ingénierie des Systèmes d Inf.* 24.1 (2019), pp. 125–129.