PUJA SAHA

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Healthcare AI and Data Scientist with M.A.Sc. in Computer Engineering, and B.Sc. in Biomedical Engineering. Experienced in large-scale data processing, pattern recognition, and predictive modeling using machine learning and deep learning. Proficient in big data analytics with PySpark on cloud platforms (AWS, Azure), and skilled in SQL for advanced data manipulation. Strong foundation in statistics, feature engineering, and model evaluation. Comfortable working in multi-OS environments (Linux, macOS, Windows) with version control using Git.

EDUCATION

M.A.Sc. in Computer Engineering (Sept 2023-Present)
CGPA: 3.93/4.00 (Average 88%)
University of Guelph, Canada

B.Sc. in Biomedical Engineering (2020)
CGPA: 3.68/4.00 (3.86 in last two years)
Bangladesh University of Professionals, Bangladesh

PROFESSIONAL DEVELOPMENT

- **AI and Data Scientist (Sept 2025-Cont.)**

mlHealth360, Surrey, BC, Canada.

At mlHealth360, I develop and implement multimodal deep learning models for medical imaging, My role involves training and validating models, documenting results, identifying potential issues, and contributing to the integration of AI solutions into clinical workflows and user interfaces. Additionally, I assist in documenting research findings, preparing technical reports, and continuously learning and applying new techniques in medical imaging and AI.

- **Research Assistant** (Sept 2023 – Present)

AI-Enabled Medical Image Analysis Lab, THRN 2131
University of Guelph, CA

Working on optimizing federated learning solutions with differential privacy for 3D medical image segmentation. Gained hands-on experience with NVFLARE, PyTorch, MONAI, OpenCV, Git, NumPy, TensorBoard, Matplotlib, and LaTeX. Focused on improving model performance and trade-offs in decentralized workflows.

- **Teaching Assistant** (Jan 2024- April 2025)

School of Engineering, University of Guelph, CA

Served as a TA for Engineering Design III (Winter 2024 & 2025) and Medical Imaging Modalities (Fall 2024), mentoring over 40 students each term in lab-based courses. In winter-2025, 2 of my 7 groups got selected and one winning 3rd place on Design Day among 70+ other groups. Developed strong skills in mentoring, technical instruction, communication, team leadership, and conflict resolution.

PUBLICATIONS (Selected)

Convolutional Neural Network to Classify Medical Images of Brain Diseases, IEEE International Conference on Healthcare Engineering (ICHE), September 2022, Malaysia.

CERTIFICATIONS (in-progress)

- Databricks Certified Machine Learning Professional
- AWS Certified Machine Learning Specialty

TECHNICAL TOOLS

ML/DL Framework: PyTorch, Scikit-learn, TensorFlow NVFLARE, MONAI, LangChain, RAGAS and Keras.
Languages: SQL, PostgreSQL, Python, MATLAB, C.
Data Engineering and EDA: Pandas, NumPy, PySpark.
Cloud and Big Data: AWS, Azure, GCP, Apache Spark.
Visualization: Matplotlib, Seaborn, and TensorBoard.
Version Control and OS: Git, Linux, Mac, Windows
Design: SOLIDWORKS, Ansys, OrCAD PSpice.
Technical Writing: Latex.

PROJECTS (Selected)

- **Medical Chatbot**

Tech Stack: Pinecone, LangChain, Ragas, PyTorch, NumPy, Seaborn, tqdm etc.

Built retrieval-augmented generation (RAG) chatbot using LLM trained on PubMed dataset for medical Q/A. Achieved 96.7% precision, 95% recall, 85% faithfulness, 73% relevancy. *GitHub Link*

- **Multiclass Semantic Segmentation**

Tech Stack: PyTorch, Torchvision, OpenCV, NumPy, matplotlib, tqdm, etc.

Developed a PyTorch-based solution for multiclass semantic segmentation of KiTS19 kidney CT scans. Achieved Dice score of 91.03% and 62.82% for kidney and tumor segmentation. *GitHub Link*

AWARDS (Selected)

- Queen Elizabeth-II Graduate Scholarship in Science and Technology, Research Fellowship, Graduate Tuition Scholarship, and Internal Growth Scholarship at the University of Guelph (2023-2025)
- 5th Best Paper Award at IEEE International Conference on Healthcare Engineering (2022)
- Silver Coin for Research, Dean's List of Honor and Merit Scholarships at MIST (2018-2019)