Hasan Shaikh

Christian Medical College, Vellore, Tamil Nadu - 632002, India
+91-7906049358 | hasanshaikh3198@gmail.com | LinkedIn | GitHub | Portfolio | Google Scholar

Work Experience

Quantitative Imaging Research and Artificial Intelligence Lab (QIRAIL) Tamil Nadu, India
Project Assistant, *Christian Medical College (CMC) Vellore, Dept. of Radiation Oncology* *Aug. 2024 – Present*

[P1] Large-Scale Imaging and Clinical Data Curation for Prospective Trials (DBT/Wellcome Trust India Alliance, India)

- Architected end-to-end radiomics pipeline (Orthanc DICOM retrieval → Citric GTV-P segmentation → PyRadiomics extraction) for ∼**2100 patients** in DBT/Wellcome Trust-funded prospective study (2020–2025).
- Deployed automated AWS S3 pipelines for secure cloud backup and data recovery, coordinating data annotation workflows.

[P2] Radiomics-Based Risk Stratification in Head and Neck Cancer

- Developed interpretable 10-feature signature (2 clinical + 8 radiomics) achieving **AUC 0.82 (95% CI: 0.62-0.95)** for locoregional recurrence prediction in 163 HNC patients.
- Benchmarked 8 metaheuristic feature selectors (PSO, GA, GWO, WOA, SSA, MFO, HHO, SCA) across multiple classifiers, identifying optimal approaches for high-dimensional radiomics data.

[P3] CT-based Automated Segmentation of Head and Neck Cancer Using 3D CNNs (Collaboration with NIT Surathkal, India)

- Curated multi-institutional dataset (167 cases: 137 MAASTRO + 30 CMC), implementing quality assurance protocols for data harmonization.
- Trained 3D nnU-Net achieving **Dice: 0.62 (HN1), 0.63 (CMC), 0.65 (combined)**, demonstrating CT-only segmentation feasibility for resource-limited settings.

[P4] CHAVI: CompreHensive Digital ArchiVe of Cancer Imaging – India's First National Oncology Imaging Biobank

- Contributed **304+ anonymized HNC cases** with validated clinical/imaging metadata to national biobank (In collaboration with: Tata Memorial Centre, IIT Kharagpur, India).

[P5] Reproducibility Study: CNN-Based Head and Neck Cancer Prognosis (GitHub)

- Systematically challenged published CNN model reproducibility across three HNC outcomes (distant metastasis, locoregional failure, overall survival).
- Identified critical flaws: incorrect datasets, data file errors, inadequate reporting protocols—successfully reproduced results by correcting errors and establishing proper validation.
- Authors acknowledged reproducibility failures after direct communication of dataset errors and documentation inadequacies.

STARlab Capital Lucknow, India
Research Analyst *Dec. 2023 – June 2024*

- Designed, backtested, and deployed volatility-based strategies (e.g., Nebula, ARUT, A2) using **OptionNet Explorer, Mesosim, OptiTrade, OptiBot** tools.
- Enhanced the ARUT strategy, increasing ROI by **52.38%** through scenario-driven optimization and real-time feedback.
- Refined internal platforms: improved trade logs, added dynamic filters, and led contributions to [OptiTrade's open-source GitHub repo].

Publications

Balu Krishna S, Amal Joseph Varghese, **Hasan Shaikh**, et al., *"Development and validation of a prospective radiomics-clinical signature for locoregional recurrence in patients with locally advanced head and neck cancer,"* Abstract submitted to the European Society for Radiotherapy and Oncology (ESTRO) Annual Meeting, Stockholm, Sweden, May 2026. (Under Review)

Piyus Prabhanjans, Asjad Nabeel P, Hannah Mary Thomas T, **Hasan Shaikh**, et al., *"Automated Segmentation of Head and Neck Cancer from CT Images Using 3D Convolutional Neural Networks,"* In: Proceedings of the International Conference on Artificial Intelligence for Healthcare (AIHC 2025). Lecture Notes in Electrical Engineering. Springer, 2025. (Accepted)

Hasan Shaikh, Balu Krishna S, Amal Joseph Varghese, et al., *"Metaheuristic-Driven Machine Learning Pipelines for Radiomics-Based Prediction of Locoregional Recurrence in Head and Neck Cancer"*, In: Proceedings of the International Conference on Artificial Intelligence for Healthcare (AIHC 2025). Lecture Notes in Electrical Engineering, Springer, 2025. (Accepted)

Hasan Shaikh and Rashid Ali, *"Cancer Survival Prediction Using Artificial Intelligence: Current Status and Future Prospects"*, Data Science in the Medical Field, Academic Press, Elsevier, 2024. ISBN-13: 978-0-443-24029-4. DOI: 10.1016/B978-0-443-24028-7.00016-7

Technical Skills

Machine Learning & DL	: PyTorch, TensorFlow, Keras, scikit-learn, PyRadiomics, nnU-Net
Medical Imaging	: 3D Slicer, ITK-SNAP, Orthanc PACS, XNAT, DICOM, NIfTI
Programming Language	: Python (NumPy, Pandas, SciPy), SQL (PostgreSQL), Bash, MATLAB
Data Pipeline & Deployment	: Docker, AWS (S3), Git, GitHub Actions, FastAPI, Flask
Data Formats & Standards	: YAML, JSON, XML, DICOM-RT
Specialized Methods	: Radiomics Analysis, Feature Selection (Metaheuristic), 3D CNNs, Graph Neural Networks, Survival Analysis, Statistical Modeling

Language Skills

English: Fluent (Professional working proficiency)
Hindi : Native
Urdu : Native

Education

Master of Technology in Computer Engineering — Nov. 2021 – Nov. 2023
Aligarh Muslim University (AMU), ***CGPA: 8.80 / 10.00*** — *Aligarh, India*

Bachelor of Technology in Computer Science and Engineering — Aug. 2017 – Jul. 2021
Dr. A.P.J. Abdul Kalam Technical University (AKTU), ***CGPA: 8.04 / 10.00*** — *Lucknow, India*

Academic Achievements & Honors

Third Prize, Oral Presentation at the 2nd National Symposium on Health Data and AI (March 2025) – Presented *"Automated Segmentation of Head and Neck Cancer from CT Images Using 3D nnU-Net"* and was awarded by the BioMedical Informatics Unit, CMC Vellore.

Honors Degree awarded for exceptional academic performance, ranking in the top 1% out of 128 students in the undergraduate engineering program.

Completed NPTEL courses conducted by IITs (Elite + Silver Certified):

- Data Analytics with Python (80%) (Link)
- Essential Mathematics for Machine Learning
- Deep Learning
- Python for Data Science (78%) (Link)
- Machine Learning
- Demystifying the Brain (Link)

Workshop/Conference Attended

1. Presented paper at the **International Conference on Artificial Intelligence for Healthcare (AIHC)**, organized by National Institute of Technology (NIT) Calicut, India (December 10 - 12, 2025) on Metaheuristic-driven radiomics-based locoregional recurrence prediction in head and neck cancer. [Lecture Notes in Electrical Engineering, Springer] (Link)
2. Organized the **1st Workshop on Radiomics and Auto Segmentation**, conducted by the Department of Radiation Oncology & Quantitative Imaging Research and Artificial Intelligence Lab, Christian Medical College (CMC) Vellore, Tamil Nadu, India (November 14–15, 2024). (Link)
3. Organized the **Head and Neck Cancer Survivorship Program**, conducted by the Department of Radiation Oncology, Christian Medical College (CMC) Vellore, Tamil Nadu, India (September 12–13, 2025). Themes: "Together We Overcome, Together We Heal" and "De-Escalation Strategies in Head and Neck Cancer."
4. Participated and served as part of the Organizing Team for the **2nd Annual Winter Symposium on Health Data and AI**, conducted by Biomedical Informatics Unit, Christian Medical College (CMC) Vellore, Tamil Nadu, India (March 13–15, 2025). (Link)
5. Attended the Continuing Medical Education (CME) program on **Revolution and Precision in Radiation Oncology**, Ida B. Scudder Cancer Center, Christian Medical College (CMC) Vellore, Tamil Nadu, India (March 1, 2025). (Link)
6. Participated in the **14th Annual Research Day**, organized by the Office of Research, Christian Medical College (CMC) Vellore, Tamil Nadu, India (October 24–25, 2024). (Link)
7. **AI & ML for Engineering & Social Sciences Research**, 2023 IEEE Computational Intelligence Society (CIS) Summer School, organized by Malaviya National Institute of Technology Jaipur (MNIT) Jaipur, India, 4 – 8 Sep. 2023. (Link)
8. **7th Summer School on AI with Focus on Computer Vision & ML**, coordinated by International Institute of Information Technology (IIIT) Hyderabad, India, 1 – 31 Aug. 2023. (Link)
9. **Emerging Research Trends in Computational Intelligence Techniques to Address Challenges in Biomedical Data and Imaging**, 2022 IEEE CIS Summer School, organized by National Institute of Technology (NIT) Arunachal Pradesh, India, 7 – 11 Nov. 2022. (Link)

Referees

Dr. Hannah Mary Thomas T
Scientist, Biomedical Informatics Unit
India Alliance Early Career Fellow
Christian Medical College, Vellore, India
hannah.thomas@cmcvellore.ac.in

Prof. Rashid Ali
Professor, Department of Computer Engineering
Zakir Husain College of Engineering & Technology
Aligarh Muslim University, India
rashidali.cse@zhcet.ac.in