Saram Abbas
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EDUCATION AND QUALIFICATIONS

Newcastle University | PhD in Machine Learning for Bladder Cancer Recurrence *2022-2026*

- Awarded a highly competitive scholarship for exceptional candidates conducting AI research in cancer prognosis.
- Developed a state-of-the-art hybrid ML model combining XGBoost's high-performance gradient boosting with a neural network self-attention mechanism, achieving best-in-class results on bladder cancer tabular data (AUC 0.83, accuracy 80%) while providing transparent, feature-level interpretability for clinicians (Paper accepted at prestigious EMBC conference)
- Published a paper in a highly prestigious journal Frontiers in Oncology — "AI Predicting Recurrence in Non-Muscle-Invasive Bladder Cancer: Systematic Review with Study Strengths and Weaknesses"
- Served as a reviewer for multiple papers submitted to the IEEE Engineering in Medicine and Biology Conference (EMBC).
- Leveraged Python (PyTorch, XGBoost, Scikit-Learn), Pandas, and advanced feature-engineering techniques to preprocess large clinical datasets and optimize model performance
- Collaborating closely with oncologists and urologists to validate model insights, refine feature attribution methods, and translate findings into actionable decision-support tools.

Newcastle University | BEng in **Electrical and Electronic Engineering** *2019-2022*
Achieved 1st Class with Honours

RELATED EXPERIENCE

Founder & Developer | Papyrus Education 2024 – Present

- Developed an AI-driven educational platform using DeepSeek LLM and Retrieval-Augmented Generation (RAG) to automate answering GCSE/A-Level exam questions.
- Engineered a semantic retrieval pipeline (FAISS), embedding extraction, and automated answer evaluation system aligned to Edexcel standards.

Newcastle University – Software and Hardware Intern *June/2020-July/2020*

- Developed a networked cluster of 40 Raspberry Pis; set up NAT routing for remote access.
- Utilised Android Studio to create an Android application in Java as a visualisation tool to accelerate research about Dynamic Voltage and Frequency Scaling on Raspberry Pis for Machine learning (Tsetlin Machine - written in C) on Linux systems. Then graphed the accuracy and time performance of machine learning algorithms (Tsetlin Automata) on the Pi Cluster.

Holiday Lets Furnishings – Junior IT Consultant *July/2019-July/2020*

- Devised IT solutions (Excel VBA and CRM) for complete digitalization of a business which is affiliated with some of the leading Furniture Manufacturers in the UK.
- Utilised access to a development team as well as learnt specialized skills in Excel VBA programming to implement successful organization of the business' inventory.

Senserve Ltd – Software Tester and UI/UX Designer Intern *July/2018-Jan/2020*

- Developed and documented application test plans based on software requirements and technical specifications, reducing the testing time required by over 30%. Presented the proposed solutions to the team with a bilingual approach to ensure understanding.
- Created high-fidelity UI mock-ups using Mockplus and Adobe Photoshop for mobile applications and CRM systems.

PUBLICATIONS

- *"AI Predicting Recurrence in Non-Muscle-Invasive Bladder Cancer: Systematic Review with Study Strengths and Weaknesses"* in *Frontiers in Oncology*, Volume 14, 2024, authored by Saram Abbas, Rishad Shafik, Naeem Soomro, Rakesh Heer, and Kabita Adhikari. DOI: 10.3389/fonc.2024.1509362 - Published
- *"Attention-enabled Explainable AI for Bladder Cancer Recurrence Prediction"*, to be presented at the 47th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2025), scheduled for July 14–17, 2025, at the Bella Center in Copenhagen, Denmark. The paper is forthcoming in the EMBC 2025 proceedings. DOI: 10.48550/arXiv.2505.00171 - Accepted

Drafting:

- *"XGBoost Meets Attention: A Hybrid Cancer Model"* for submission to *European Urology*, authored by Saram Abbas, Rishad Shafik, Naeem Soomro, Rakesh Heer, and Kabita Adhikari.
- *"Clinically Inherently-Interpretable Bladder Cancer Prediction Using Tsetlin Machines"* for submission to *Journal of Biomedical Informatics*, authored by Saram Abbas, Rishad Shafik, Naeem Soomro, Rakesh Heer, and Kabita Adhikari.

ADDITIONAL SKILLS

- **Languages & Tools:** Python, C++, Excel VBA, Android Studio, Docker, Kubernetes, LaTeX
- **ML Tools:** NLP, Predictive Modeling, Pandas, Pytorch, NumPy, Scikit-Learn, SciPy, Jupyter Notebooks