Abhishek Singh

📍 678265,Singapore   ✉ abhisteak@gmail.com   📞 +65-85026836   in Portfolio   ✉ References

Education

Queen Mary University of London *London, UK*
MSc in Machine Learning & Computer Vision *2022 - 2023*
○ Relevant Coursework: Machine Learning, Deep Learning & Computer Vision, Data Mining

Malaviya National Institute of Technology, Jaipur *Jaipur, India*
BTech in Electrical Engineering *2017 – 2021*
○ Relevant Coursework: Signal Processing, Control Systems, Neural Networks & Graphs

Skills & Interests

○ **Programming & Scripting:** Python, R, Perl, Java, SQL, Bash, Linux
○ **Frameworks & Libraries:** PyTorch, TensorFlow, Apache Spark, Flask, React, Node.js, MATLAB, Biopython, Chimera, PyMOL
○ **DevOps & Tools:** Docker, Kubernetes, Git, Azure DevOps, Hadoop, Jira, Scrum
○ **ML & AI:** Machine Learning, Deep Learning, Computer Vision, Diffusion Models, LLMs, NLP, Classification, Anomaly Detection, Deployment
○ **Data Skills:** Data Mining, Big Data Analytics, EDA, Visualization (Matplotlib, Seaborn)
○ **Cloud & Platforms:** AWS (SageMaker, S3, Bedrock), Hugging Face (diffusers)
○ **Languages:** English (Native), Japanese (N4, working toward N3), Hindi

Experience

AI Drug Discovery *Singapore*
Hummingbird Bioscience *July 2024 – Present*
○ Engineered and deployed ML pipelines for nanobody design using RFdiffusion for backbone generation and ESM-3 for inverse folding, translating research into reproducible production workflows, leveraging Docker containerization, and Linux-based HPC clusters.
○ Designed and set up workflows for fine-tuning DiffAb (a diffusion-based model) for generating CDR3 loops targeting CD3 and explored strategies for RFdiffusion adaptation, with detailed documentation to ensure reproducibility in innovative bioinformatics solutions.
○ Conducted Molecular Dynamics (MD) simulations using GROMACS on clusters using slurm schedulers to validate designs' physical properties and dynamics, ensuring robustness prior to experimental testing.

Data Science Analyst *London, UK*
Yori Shoreditch *Dec 2023 – June 2024*
○ Engineered and deployed a production-grade multimodal forecasting system leveraging ensemble methods and LSTM networks, executed A/B testing to validate model configurations and optimize feature selection..
○ Reduced prediction error by 28%, while documenting the novel methodology in an internal technical report and conducting knowledge-sharing sessions with cross-functional teams to drive adoption.

Computer Vision Engineer (Contract) *London, UK*
Sibylline Advisory *Nov 2023 – Mar 2024*
○ Engineered a high-accuracy crop quality analysis system, achieving over 95% accuracy by developing a disease classification and detection model using AWS Rekognition and YOLOv5, and implemented a robust CI/CD pipeline with Docker containerization to streamline deployment and scaling, thereby optimizing stakeholder decision-making and boosting agricultural sales through actionable insights.

Software Consultant *Noida, India*
Jantacare Services *July 2021 – Aug 2022*
○ Acted as a techno-functional consultant on Tivoli and IBM Maximo, developing automation scripts using python, Java, performing API calls, and conducting rigorous User Acceptance Testing (UAT).

Leadership & Projects

Dissertation Project *London, UK*
Queen Mary University *2022 – 2023*
○ Surpassed state-of-the-art in fashion garment synthesis by developing a novel stable diffusion pipeline that generates high-quality garments from text and sketch prompts, outperforming existing models on metrics like FID, CLIP, and structural similarity. Available here.