SPANDAN SURDAS

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EDUCATION

Northeastern University, Khoury College of Computer Sciences *Boston, MA*
Masters of Science in Data Science Graduating May 2027
Coursework: Essentials Of Data Science, Algorithms, Introduction to Machine Learning and Pattern Recognition

Pimpri Chinchwad College Of Engineering *Pune, India*
Bachelor of Technology, Computer Engineering May 2025
Coursework: Data Structure and Algorithms, Object Oriented Programming, Computer Networks, Operating Systems, Machine Learning, Business Intelligence, Cloud Computing, Image and Video Processing, Data Mining and Warehousing

TECHNICAL SKILLS

Programming & Image Processing: Python, C++, OpenCV, Scikit-Image, Histogram Equalization, Segmentation

Machine Learning & Data Handling: Supervised & Unsupervised Learning, Clustering, Feature Engineering, Model Evaluation, NumPy, Pandas

Frameworks/Tools: Matplotlib, Plotly, Seaborn, Power BI, SQL, MySQL, DynamoDB, AWS (EC2, S3, RDS, Lambda)

Other Skills: Problem Solving, Analytical Thinking, Data Analysis, Project Management, MS Office, Google Workspace

PROFESSIONAL EXPERIENCE

Medtigo *Pune, India*
Independent Contractor | Data Science and AI Consultant May 2025 – August 2025
- Engineered an AMR prediction system, delivering 92% accuracy across six drug classes and regions to support clinical decision-making
- Designed and deployed a retrieval-augmented AI chatbot (RAG), cutting clinical query response time by 40%

Universiti Teknologi PETRONAS (UTP) *Seri Iskandar, Malaysia*
Research Internship June 2024 – September 2024
- Developed disease-mapping ML models with 89% accuracy, improving prediction by 15% on real-world healthcare data.
- Implemented clustering pipelines to identify health risk patterns in multidisciplinary research datasets.

RESEARCH WORK

- **MRI Image Enhancement using POSHE and CLAHE (Oct 2024)** *Link*
  Improves tumour MRI scan clarity through integrated POSHE and CLAHE histogram equalization, achieving higher Entropy (+7.1) and reduced NIQE, BRISQUE, and PIQE scores for enhanced diagnostic accuracy and visual consistency.
- **A Hybrid Approach to Underwater Image Enhancement (Oct 2024)** *Link*
  Combines dehazing, color correction, and contrast enhancement techniques to boost underwater image quality, showing 11.5% BRISQUE, 2.18% NIQE, and 4.75% PIQE improvement on UIEB and EUVP datasets, demonstrating consistent enhancements.
- **Detection of DDoS Attack in Cloud Computing Environment Using Artificial Neural Network (Dec 2024)** *Link*
  Develops an ANN-based model for accurate real-time detection of DDoS attacks in cloud settings, reducing false alarms.
- **The Future of Plant Health: A Vision for Genetically-Inspired Image Processing and Deep Learning (Sep 2024)** *Link*
  Integrates deep learning (CNN, EfficientNet), genetic algorithms, and image segmentation to improve plant disease detection accuracy (up to 97%), enhancing feature optimization and enabling sustainable, data-driven crop protection.

ACADEMIC PROJECTS

Early Detection of Neurodegenerative Diseases: A Generalized Approach *Ongoing*
- Architecting a scalable medical imaging pipeline, with initial feature extraction and enhancement modules validated on MRI datasets.
- Engineering predictive modeling workflows to support early diagnosis and iterative clinical evaluation.

AI-Driven Video Generation System for Lunar Image Enhancement and Analysis May 2025
- Developed a lunar video generation pipeline using a FILM model fine-tuned on Chandrayaan-3 data, achieving SSIM > 0.98 and PSNR 35 dB for PSR frame interpolation.
- Enabled downstream lunar terrain analysis, including crater detection and sun-angle estimation, to support mission planning and exploration-grade scientific analysis.

Supply Chain Disruption Analysis Nov 2024
- Designed Power BI dashboards with DAX, analyzing 500k+ supply chain records to identify disruption patterns.
- Identified logistics bottlenecks, improving operational efficiency and profitability.