Virja Kawade

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Education

G. H. Raisoni Institute of Engineering and Technology — Nagpur, India
B.Tech in Artificial Intelligence; GPA: (9.38/10) — *2019 – 2023*

Swarnaleela International School — Wani, India
SSC (12th); Percentage: 91.4 — *2018 – 2019*

Swarnaleela International School — Wani, India
HSC (10th); Percentage: 96.8 — *2016 – 2017*

Internships

BETIC Lab, IIT Bombay, GHRCE Branch — Feb 2023 – May 2023
Project Intern — *Nagpur, India*

- Worked in Biomedical Engineering and Technology Innovation Centre (BETIC) on developing innovative solutions in medicine through AI. Some projects are -
  - 'Comparative Analysis Of Deep Learning Models And Conventional Approaches For Osteoporosis Detection In Hip X-Ray Images',
  - 'Machine Learning-Based Arrhythmia Detection'
  - 'Genetic Algorithm-Based Timetable Generation For Optimizing Schedule Allocation'

HIXAA Pvt. Ltd — Aug 2022 – Dec 2022
Project Intern — *Nagpur, India*

- Worked on developing open lid detection software (using computer vision algorithms like YOLO and MaskRCNN) for Silo ash collector trucks at Adani Power Rajasthan Ltd.
- Developed time management, leadership, and skills in computer vision and machine learning

Projects

Comparative Analysis Of Deep Learning Models And Conventional Approaches For Osteoporosis Detection In Hip X-Ray Images

- Used Inception Net, ResNet-50, YOLOv7 and YOLOv8 models for the detection of Osteoporosis in X-Ray images of patients.

Machine Learning-Based Detection of Arrhythmia

- Developed a modified version of a Convolutional Neural Network with ResNet-50 as a backbone as well as a 1D CNN for the classification of Arrhythmic and Non-Arrhythmic signals from Electrocardiograms (EKG or ECG) of suspected patients.

Genetic Algorithm-Based Timetable Generation For Optimizing Schedule

- Developed a novel method for the generation of time tables using genetic algorithm. The developed approach shows potential for automating and optimising the creation of time tables at educational institutions.

GANs to draw Composite Sketches (of Criminal Suspects) solely from a witness description

- Employed GANs (Generative Adversarial Networks) to draw sketches of persons just from the description, given by the witness, thus building an AI-based application to help solve criminal cases. The Multi-Modal Celeb HQ Dataset was used for training of the GANs.

Virtual Self-Driving Vehicle Brain

- Developed a virtual simulation environment and brain using reinforcement learning of a virtual self-driving car that navigates obstacles in the virtual window through the use of pixel sensors.

Skills

Technical Skills:

- **Languages:**Python, R, C, Java, Matlab, SQL
- **Frameworks**: PyTorch, TensorFlow, Matplotlib, Scikit-Learn, OpenCV, Keras, NumPy, SciPy
- **Tools:** Hadoop, AWS Lambda, SageMaker, Amazon S3, Amazon EC2 Container Service

Certificates and Achievements

- Highest CGPA of the undergraduate class in G. H. Raisoni Institute of Engineering and Technology, Nagpur.
- Top 5% candidate and silver medalist in NPTEL's "Leadership and Team Effectiveness" certification course provided by IIT Roorkee (Link)
- Certified in Python and Machine Learning through Datacamp
- Enthusiastic Kaggle Contributor. Sample works : Step-by-step mnist digit recognition | Digit recognition on Kannada mnist with CNNs

Publications

- "A Comparative Analysis of Deep Learning Models and Conventional Approaches for Osteoporosis Detection in Hip X-Ray Images", World Conference on Communication & Computing (WCONF), IEEE, 2023
- "Arrhythmia Detection using Machine Learning & Deep Learning", Futuristic Trends in Artificial Intelligence, Volume 3, 2023
- "Real-time open lid detection of bulkers using YOLOv7 Tiny, Faster RCNN, and Mask RCNN", The International Journal of Creative Research and Thoughts, (IJCRT), 2020

Extracurriculars

Creative Design Editor 2021 – 2023
Adhyaay, Departmental Magazine, GHRIET *Nagpur, India*

Student In-Charge 2020 – 2021
AI Club, GHRIET *Nagpur, India*