



EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2024	M.TECH	IIT Kharagpur	7.83 / 10
2020	Electrical Engineering	Gurukula Kangri Vishwavidyalaya Haridwar	8.64 / 10
2015	Class XII	CBSE	81%
2013	Class X	CBSE	9.6 / 10

COURSEWORK INFORMATION

- Deep Learning: Foundations and Applications
- Machine Learning for Signal Processing
- Digital Image Processing
- Probability and Random Processes for Signal and Systems
- Linear Algebra for Signal and Systems
- Convex Optimization
- Statistical Signal Processing
- Medical Image Analysis

PROJECTS

Estimation of Cognitive Load using Microsaccadic Features | M.Tech Thesis

- Detected face using a CNN model and performed Pupil localization.
- Estimated Microsaccades using a MAD-based Velocity Threshold and then Binocular microsaccades were selected based on temporal overlap. Outliers filtered out using RANSAC.
- Cognitive load estimated using the saccadic features.
- **Supervisor:** Prof. Aurobinda Routray, Electrical Engineering, IIT Kharagpur

Deep Convolutional AutoEncoder-based Lossy Image Compression | Self Project

- Built a Convolutional Encoder followed by PCA and Entropy Coding to further compress the feature maps.
- The method outperforming JPEG2000 by achieving a 14.3% BD-rate decrement on Kodak images.

Background Subtraction from Video using Extended Scale Invariant Local Binary Patterns | Course Project | Nov'22

- Extracted Colour Features and texture features from frames using Local Binary Patterns.
- Using these features, each pixel is classified into background and foreground pixels

Detection of Premature Ventricular Contraction in ECG and S1 & S2 Heart Valve Sounds in PCG using ECG & PPG | Course Project | Nov '22

- For PVC detection in ECG, first location of QRS complex and then by using Form Factor we detected the PVC beats.
- For PCG's S1 and S2 detection, we link QRS complex to S1, and then match Dicrotic notch in PPG for S2 in PCG.

SKILLS AND EXPERTISE

- **Key Skills:** Image Processing | Predictive Modelling | Statistical Analysis | Data Visualization
- **Programming Languages:** Python | C++
- **Libraries:** TensorFlow | scikit-learn | NumPy | Pandas | OpenCV
- **Software Tools:** Matlab | SQL | Git | Docker | LTspice | LaTeX
- **Machine Learning:** Regression | Classification | Clustering | SVM | Decision Tree
- **Deep Learning:** CNN | RNN | GAN

CERTIFICATIONS

Stanford Coursera:

- Supervised Machine Learning: Regression and Classification
- Neural Networks and Deep Learning
- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization
- Advanced Learning Algorithms
- Structuring Machine Learning Projects

AWARDS AND ACHIEVEMENTS

- Secured an **All India Rank 747 (99.147 percentile)** in **GATE 2021** out of 87559 candidates.
- **Gold Medalist** in two semesters (2nd & 7th) in B.Tech

POSITIONS OF RESPONSIBILITY

- **Teaching Assistant | Digital Signal Processing Lab | EE39203 | Aug'23 - Nov'23**
Mentored a batch of 45 students for signal processing related experiments.
- **Event Organizer in College Tech Fest (Jnanagni) - 2019**

EXTRA CURRICULAR ACTIVITIES

- Member of Technology Aquatic Society, IIT Kharagpur
- Part of the Institute Badminton Team in B.Tech - 2019

INTERNSHIPS

- **Bharat Heavy Electricals Limited (BHEL) Haridwar - 2019:** Explored manufacturing process of Alternator and its assembly.
- **Diesel Locomotive Works (DLW) Varanasi - 2018:** Explored manufacturing processes of Diesel locomotives and Electric locomotives.