

EDUCATION

- 2012–2017 **Indian Institute of Technology, Kharagpur** CGPA: **8.16/10**
Five year Dual Degree Course (B.Tech + M.Tech)
B.Tech: *Electronics and Electrical Communication Engineering*
M.Tech: *Visual Information and Embedded Systems*
- 2011 **Jawahar Navodaya Vidyalaya, Wardha** Score: **94.4%**
Higher Secondary - *CBSE AISCCE*
- 2009 **Jawahar Navodaya Vidyalaya, Wardha** Score: **90.4%**
Secondary - *CBSE AISSE*

INTERSHIPS

- May–July **IBM India | Extreme Blue Intern**
2016
 - ARGOS : EDA Hierarchical Design modelling & Distributed Graph Processing Framework using Spark
 - Client Server Model on Apache Spark which enables handling large designs on distributed platform
 - Graph Processing framework using Google Pregel which computes paths between nodes, worst path and neighbors to a node
- Dec 2016 **Trinity College Dublin, Ireland | Visiting Research Student**
 - INFOCARVE (Interactive Focus and Context Visualization for Augmented Reality) Guide : Dr. John Dingliana
 - This project addresses the problem of effective interactive visualization of highly complex dynamic 3D geometric data on AR displays
 - Constructed a virtual 3D model of the college with Depth Based Rendering and occlusion detection using Google Tango Project
- May–July **Gray Routes Innovative Distributions, Mumbai | Software Developer**
2015
 - Implemented functionalities using google maps API and the direction service for planning optimized journey via outlets to the destination
 - Google BigQuery was used for big data parallel query processing. The features created were added to the live code-base of the company

PROJECTS

- July 2015 – present **Deep Neural Network based Speech Synthesis (Bachelors Dissertation)**
 - o Guide: Prof. Goutam Saha, IIT Kharagpur
 - Extracted linguistic contextual features from text for every frame by force aligning the phones to and adding frame specific features
 - For output, acoustic features for every frame of waveform are calculated which includes MFCC, F0 and band aperiodicities
 - Designed a deep neural network architecture and trained on cmu arctic database, gave much better performance than HMM TTS system
- July – Nov 2015 **Plagiarism detection in programming language source codes using NLP Tree kernel**
 - o Guide: Prof. Pawan Goyal, IIT Kharagpur
 - Generated a language model using the corpus created by in-lined sample codes which was used to find KL-divergence between two codes.
 - Built an abstract Syntax tree of the language and compared with various subtree matching techniques
 - Trained SVM using above features gave 78% accuracy taking the MOSS plagiarized detector as ground truth reality.

- July – Nov 2015 **Face Recognition using 2D-Principal Component Analysis**
 o Guide: Prof. Sudipta Mukhopadhyay, IIT Kharagpur
 – Analyzed 2D-PCA based feature extraction used in facial recognition and image reconstruction
 – Compared the computational efficiency of 2DPCA over PCA and Obtained a face recognition accuracy of 95.6% on ORL and Yale databases
- July – Nov 2015 **Imposter Detection and Mood Analysis using Key Stroke Dynamics**
 o Guide: Prof. Sudipta Mukhopadhyay
 – Determined the multivariate Gaussian distribution for each user by using the hold times and the latency periods of the keystrokes
 – Extracted Harr like facial features to train KNN on JAFFE and achieved accuracy of 76% in user detection and 85% in mood detection
- May – July 2014 **Interactive Construction of 3D Models from Panoramic Mosaics**
 o Guide : Prof. P. K. Biswas, IIT Kharagpur
 – Designed a system that uses a set of images taken from the same view point and their transformation matrices for the 3D reconstruction
 – The problem is formulated as a least square problem by partitioning the constraints as hard, soft and solved using QR factorization

TECHNICAL SKILLS

Programming C/C++, PHP, Python, JAVA, Javascript, Scala
 Software Visual Studio, MATLAB, Unity
 Others L^AT_EX, OpenCV, SQL, Google BigQuery

COURSEWORK INFORMATION

- | | |
|---|---|
| - Parallel and Distributed Algorithms | - Algorithms I & II |
| - Speech and Natural Language Processing | - Advanced Graph Theory |
| - Data Structure and Object Representation | - Machine Intelligence and Expert Systems |
| - Pattern Recognition and Image Understanding | - Digital Image Processing |
| - Probability and Stochastic Processes | - Matrix Algebra |

AWARDS AND ACHIEVEMENTS

- 2015 Achieved an all India rank of 108 in the first round of **ACM-ICPC Asia Chennai**.
- 2011 Solely designed and Exhibited a mathematics project at prestigious **Jawaharlal Nehru National Science Exhibition for Children, Jaipur** and **98th Indian Science Congress, Chennai** where it was personally appreciated by Dr. Thomas Steitz (Nobel laureate).
- 2011 **Regional Topper** in Class XII Board (CBSE) from Pune Region.
- 2010 Among top 400 students who qualified for **Indian National Mathematics Olympiad**.
- 2008 Among top 10% scorers in **XL National Mathematics Talent Competition** by 'The Association of Mathematics Teachers of India'.

POSITION OF RESPONSIBILITY/ EXTRA CURRICULAR ACTIVITIES

- 2015 Won Silver at **Interhall Sketching** and Gold at **InterHall Rangoli** Competition, Technology Students Gymkhana, IIT Kharagpur.
- 2013 Awarded 'C' and 'B' Certificate in National Cadet Corps (1 Bengal EME Coy NCC).
- 2013 Subhead, **National Students Space Challenge'13** (nssc.in) Involved coordinating a team of 24 peoples in the design team of the first space fest organized by SPATS, IIT Kharagpur.