IIT Kharagpur

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**ACADEMIC QUALIFICATIONS**

**Indian Institute of Technology, Kharagpur** CGPA: **8.07**

Five year Dual Degree Course (B.Tech + M.Tech)  *2012-2017(Expected)*

B.Tech: Electronics and Electrical Communication Engineering

M.Tech: Visual Information and Embedded Systems

**Jawahar Navodaya Vidyalaya, Wardha** Score: **94.4 %**

*Higher Secondary – CBSE AISSCE* *2011*

**Jawahar Navodaya Vidyalaya, Wardha** Score: **90.4 %**

*Secondary – CBSE AISSE 2009*

**PROJECTS**

**INFOCARVE: Interactive Focus and Context Visualization for Augmented Reality** (Winter Intern)*(Dec 2015)*

* Guide: Dr. John Dingliana, Trinity College, Dublin
* This project addresses the problem of effective interactive visualization of highly complex dynamic 3D geometric data on augmented reality (AR) displays.
* Constructed a virtual 3D model of the college which consisted of virtual buildings and crowd simulation using a college logo as an image target.
* Depth Based Rendering and occlusion detection of an object using Depth from Google Tango Project.

**Deep Neural Network based Speech Synthesis** (Bachelor’s Dissertation) *(July 2015 – present)*

* Guide: Prof. Goutam Saha
* Extracted linguistic contextual features from text for frames by force aligning the phones to frames.
* Obtained acoustic features for every frame of waveform using `straight`.
* Designed a deep neural network architecture and trained on cmu arctic database.
* Synthesized a waveform for a given text with the constraints on the computing power while training.

**Plagiarism detection in programming language source codes using NLP Tree kernel** *(July –Nov 2015)*

* Guide: Prof. Pawan Goyal
* Generated a language model using the corpus created by the available 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.

**Face Recognition using 2D-Principal Component Analysis**  *(Feb– April 2016)*

* Guide: Prof. Sudipta Mukhopadhyay
* Analyzed 2D-PCA based feature extraction used in facial recognition and image reconstruction.
* Compared the computational efficiency of 2DPCA over PCA.
* Obtained a face recognition accuracy of 95.6% on ORL and Yale databases.

**Imposter Detection and Mood Analysis using Key Stroke Dynamics** *(July–Nov 2015)*

* Guide: Prof. Sudipta Mukhopadhyay
* Determined the multivariate Gaussian distribution for each user by using the hold times and the latency periods of the keyboard keystrokes using the data collected by each user.
* Extracted Harr like facial features to make the K-Nearest Neighbor classifier predicting the mood of the user by training it over the JAFFE database. Both of these features were used for imposter detection.
* Achieved accuracy of 76% in detecting the user and 85% in mood detection.

**Interactive Construction of 3D Models from Panoramic Mosaics** *(May – July 2014)*

* Guide : Prof. P. K. Biswas
* Designed a system that uses a set of images taken from the same view point and their transformation matrices as input for the 3D reconstruction.
* Recovered the camera pose for each mosaic from known line directions and points.
* Constructed a 3D model using all available geometrical constraints. The problem is formulated as a least square problem by partitioning the constraints as hard and soft, which can be solved using QR factorization.

**WORK EXPERIENCE**

**Software Developer** Gray Routes Innovative Distributions, Mumbai*(May – July 2015)*

* Tested the use of google BigQuery for big data parallel query processing.
* Implemented functionalities using google maps API and the direction service for planning optimized journey via some outlets to the destination with option for manually prioritizing some outlets.
* The features created were added to the live code-base of the company.

**TECHNICAL SKILLS**

**Programming languages** C, C++, PHP, Python

**Software frameworks** Visual Studio, MatLab, Unity

**Others** OpenCV, SQL, Google BigQuery

**RELEVANT COURSES UNDERTAKEN/ONGOING**

* Programming and Data Structure\*
* Microcontrollers and Embedded Systems\*
* Matrix Algebra
* Probability and Stochastic Processes
* Computer Communication and Networking

#courses on coursera

\*courses with lab component

* Digital Image Processing\*
* Speech and Natural Language Processing
* Pattern Recognition and Image Understanding
* Algorithms I & II#
* Machine Intelligence and Expert Systems

**SCHOLASTIC ACHIEVEMENTS**

* Achieved an all India rank of 108 in the first round of ACM-ICPC Asia Chennai. *(2015)*
* Solely designed and Exhibited a mathematics project at several stages followed by prestigious

**Jawaharlal Nehru National Science Exhibition for Children, Jaipur** and finally at **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. *(2011)*
* Among top 400 students who qualified for **Indian National Mathematics Olympiad**. *(2010)*
* Awarded Meritorious Scholarship in Maharashtra Talent Search Examination, 2009. *(2009)*
* Among top 10% scorers in **XL National Mathematics Talent Competition** conducted by ‘The

Association of Mathematics Teachers of India’. *(2008)*

**POSITION OF RESPONSIBILITY AND EXTRA CURRICULAR ACTIVITIES**

* Won Silver at Interhall Sketching Competition, Technology Students Gymkhana, IIT Kharagpur. (2015)
* Part of Silver winning Case Study Event, Technology Students Gymkhana, IIT Kharagpur. *(2014)*
* **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. *(2013)*
* Member of Gold Winning Inter-Hall Rangoli Competition in a team of 5. *(2013)*
* Awarded **‘C’** and **‘B’** Certificate in National Cadet Corps (1 Bengal EME Coy NCC). *(2012)*