ASHISH H MANMODE | 12EC35006

ELECT.&ELEC.COM.ENGG.VISUAL INFORMN. & EMBEDDED SYS.(M.Tech Dual5Y)

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2017	M.TECH Dual Degree 5Y	IIT Kharagpur	8.16 / 10
2011	All India Senior School Certificate Examination	Central Board of Secondary Education	94.4%
2009	All India Secondary School Examination	Central Board of Secondary Education	90.4%

INTERNSHIPS

IBM India | Extreme Blue Intern **May-July 2016**

- ARGOS : EDA Hierarchical Design modelling & Distributed Graph Processing Framework using Spark
- Created a Client Server Model on Apache Spark which enables handling large designs on distributed computing and storage platform
- Graph Processing framework using Google Pregel which computes paths between nodes, worst path and neighbours to a node

Trinity College Dublin, Ireland | Visiting Research Student **Dec 2015**

- Poject : 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

Gray Routes Innovative Distributions, Mumbai | Software Developer **May-July 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

Deep Neural Network based Speech Synthesis (Bachelors Dissertation)

o Guide: Prof. Goutam Saha, IIT Kharagpur (July 2015-present)
- 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

Plagiarism detection in programming language source codes using NLP Tree kernel

o Guide: Prof. Pawan Goyal, IIT Kharagpur (July-Nov 2015)
- 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.

Face Recognition using 2D-Principal Component Analysis

o Guide: Prof. Sudipta Mukhopadhyay, IIT Kharagpur (July-Nov 2015)
- 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

Imposter Detection and Mood Analysis using Key Stroke Dynamics

o Guide: Prof. Sudipta Mukhopadhyay (July-Nov 2015)
- 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

Interactive Construction of 3D Models from Panoramic Mosaics

o Guide : Prof. P. K. Biswas, IIT Kharagpur (May-July 2014)
- 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

COURSEWORK INFORMATION

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

SKILLS AND EXPERTISE

Programming languages C, C++, PHP, Python, Java, Scala, Javascript
Software frameworks/Others Visual Studio, MatLab, Unity,OpenCV, SQL, Google BigQuery

AWARDS AND 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 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. (2011)
- Among top 400 students who qualified for **Indian National Mathematics Olympiad**. (2010)
- Among top 10% scorers in **XL National Mathematics Talent Competition** by 'The Association of Mathematics Teachers of India'. (2008)

EXTRA CURRICULAR ACTIVITIES

- Won Silver at **Interhall Sketching** and Gold at **InterHall Rangoli** Competition, Technology Students Gymkhana, IIT Kharagpur. (2015)
- 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. (2013)