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ASHISH H MANMODE

ACADEMIC QUALIFICATIONS

Indian Institute of Technology, Kharagpur *2012-2017(Expected)*
Five year Dual Degree Course (B.Tech + M.Tech) CGPA: **8.07**
B.Tech: Electronics and Electrical Communication Engineering
M.Tech: Visual Information and Embedded Systems

Jawahar Navodaya Vidyalaya, Wardha *2011*
Higher Secondary – CBSE AISSCE Score: **94.4 %**

Jawahar Navodaya Vidyalaya, Wardha *2009*
Secondary – CBSE AISSE Score: **90.4 %**

SCHOLASTIC ACHIEVEMENTS

- Achieved an all India rank of 108 in the first round of ACM-ICPC Asia Chennai. *(2015)*
- Ranked 1261 at Round 1 of **Facebook Hacker Cup 2015**. *(2015)*
- Cleared **Joint Entrance Examination** conducted by Indian Institute of Technology with 99.16 percentile. *(2012)*
- Solely designed and Exhibited a mathematics project named 'COMPLEX GEO_TRIGONOMETER' at several stages followed by prestigious **Jawaharlal Nehru National Science Exhibition for Children, Jaipur** and finally at **98th Indian Science Congress, Chennai**. *(2011)*
- **Regional Topper** in Class XII Board (CBSE) from Pune Region. *(2011)*
- Among top 400 students who qualified for **Indian National Mathematics Olympiad – 2010**. *(2010)*
- Awarded Meritorious Scholarship in Maharashtra Talent Search Examination, 2009. *(2009)*
- Among top 10% scorers in **XL National Mathematics Talent Competition 2008** conducted by 'The Association of Mathematics Teachers of India'. *(2008)*

WORK EXPERIENCE

Winter Intern, Trinity College, University of Dublin, Ireland *(Dec 2015)*

- Under supervision of Prof. John Dingliana at Graphics Vision Visualization Group, School of Computer Science and Statistics, Trinity College, University of Dublin.
  - Built a virtual 3D model of the city over image target on Google Tango Project. The scene consisted of virtual buildings and crowd simulation.
  - Depth from Tango Project was also used for occlusion detection and depth based rendering.

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

- Summer Intern – Product Analyst
  - Worked on Google BigQuery, Query Optimization and added backend functionalities to the existing application. Technologies used: PHP, Javacsript, Google BigQuery, Google Maps.
  - Functionalities implemented 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.

PROJECTS

Deep Neural Network based Speech Synthesis *(Bachelor's Training Project)* *(July 2015 – present)*

- Bachelor's Training Project under Prof. Goutam Saha, IIT Kharagpur
  - Traditional TTS systems uses Hidden Markov Model Based approach at speech synthesis. Use of DNN will be tested for speech synthesis in this project.
  - HTK Toolkit is being used for the data preparation and feature generation to be trained on the DNN.

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

- Term Project under Prof. Pawan Goyal, Computer Science Department, IIT Kharagpur
  - Generated unigram, bigram and trigram for programming language corpus and the sample codes to compare the codes using symmetric KL-Divergence.
  - Abstract Syntax trees were generated for codes and compared with different techniques.
  - Both of above were used as features to find the plagiarized pair of codes.
  - Trained SVM on KL-divergence with Kernel Tree gave 78% accuracy taking the MOSS plagiarized detector.

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

- Machine Learning Term Project under Professor Sudipta Mukhopadhyay, IIT Kharagpur
  - 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 and 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 2014 – July 2014)*

- Summer Project under Prof. P. K. Biswas , IIT Kharagpur
  - The System uses a set of images taken from a same view point and their transformation matrices as input. It recovers the camera pose for each mosaic from known line directions and points, and then constructs 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.

Complex Geo-Trigonometer *(May 2010 – Sept 2010)*

- College level project under Mr. Kawade, JNV Wardha.
  - A college level project which implements many mathematical concepts of former level in a practical way. It gives a best tool to find trigonometric function values of all possible angles and also the inverse of all invertible functions.
  - The Project received appreciation at National level as well as it was personally appreciated by Dr. Thomas Steitz (Nobel laureate Chemistry) at 98th Indian Science Congress, Chennai.

TECHNICAL SKILLS

- Programming languages — C, C++, PHP, Javascript, Python (Basics)
- Libraries and API's — OpenCV, Google Maps, Ruby on Rails (moderate)
- Software frameworks — Visual Studio, MatLab, SolidWorks, Unity
- DBMS — SQL, Google BigQuery

RELEVANT COURSES UNDERTAKEN/ONGOING

- Digital Image Processing*
- Speech and Natural Language Processing
- Digital Signal Processing*
- Digital Communications*
- Pattern Recognition and Image Understanding
- Mathematics I & II
- Algorithms I & II#
- Programming and Data Structure*
- Machine Intelligence and Expert Systems
- Microcontrollers and Embedded Systems*
- Matrix Algebra
- Probability and Stochastic Processes
- Computer Communication and Networking
- Digital Electronic Circuits*

#courses on coursera

*courses with lab component

POSITION OF RESPONCIBILITY AND EXTRA CURICCULAR ACTIVITIES

- Part of Silver winning Case Study Event, Technology Students Gymkhana, IIT Kharagpur. *(Mar 2014)*
- **Subhead, National Students Space Challenge'13 (nssc.in)** *(Sept 2013)*
  Involved coordinating a team of 24 peoples in the design team of the first space fest organized by spAts, IIT Kharagpur.
- Member of Gold Winning **Inter-Hall Rangoli** Competition in a team of 5. *(Oct 2013)*
- Awarded **'C'** and **'B'** Certificate in National Cadet Corps (1 Bengal EME Coy NCC). *(2012-2013)*