Shubham Agarwal

InternationalInstituteofInformationTechnology-Hyderabad
shubham.agarwal@students.iiit.ac.in
Phone: +91 8886 443887

https://in.linkedin.com/in/shubham-agarwal-63806bb4
https://github.com/agarwal-shubham

EDUCATION

INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY - HYDERABAD
|B.Tech ECE + Honors in Computer Vision lab
2013-2017 | Hyderabad, India • cum. GPA: 7.7/10

ST. PETERS COLLEGE | ICSE board | Class X
2001-2010 | Agra, Uttar Pradesh, India • Percentage: 92.4%

HOLY PUBLIC SCHOOL | CBSE board | Class XII
2011-2012 | Agra, Uttar Pradesh, India • Percentage: 89%

RESEARCH

- **COMPUTER VISION INFORMATION TECHNOLOGY LAB** | Pupil tracking, Gaze estimation

July 2015-April 2016 | IIIT-Hyderabad, India

Working under Prof. Anoop M. Namboodiri to create a real time application to detect and segment iris and pupil regions and track pupil dilation under challenging environments. It also performs gaze estimation and uses prediction algorithms to learn from eye tracking movements and remove further errors.

- **COMPUTER VISION INFORMATION TECHNOLOGY LAB** | Eye Sensitivity - Google Cardboard

May 2015 - June 2015 | IIIT-Hyderabad, India

Worked under Prof. Anoop M. Namboodiri to develop an app on Google Cardboard to test the eye brightness/contrast sensitivity with both voice and external input from user via bluetooth with large scale medical applications. Project to be further extended.

PROJECTS

- **HUMAN POSE ESTIMATION USING CONVNET AND SPATIAL MODEL** | SMAI Project
  - Worked on a CVPR2015 research paper using torch framework to detect body joint locations as heat maps via application of Deep Convolution Networks and a higher level MRF based spatial model on FLIC database and successfully trained a model for the same.
- **IMAGE ENHANCEMENT USING FLASH/NO-FLASH IMAGE PAIRS** | Image Processing Project
  - Worked and improved on a SIGGRAPH 2004 Microsoft research paper utilising various algorithms like bilateral(modified) filter, red eye correction, continuous flash adjustment, noise removal, white balancing(modified), flash shadow and specularity removal,etc. for image enhancement from flash and n0-flash image pairs of the same scene.
- **SEARCH ENGINE ON LARGE WIKI DUMP** | Information Extraction and Retrieval Project
  - Developed a search engine on a large (50GB) wiki dump giving ranked outputs based on user query. Multi-field queries were also considered. Also, stemming, stop words removal, parsing(from scratch), index compression, disk memory and in-memory optimization, k-way merging, multi-level indexing, tf-idf based vector space model for ranking and other standard methods were all implemented in the same to make index creation and search very fast and optimized according to RAM.
- **PORTAL FOR EARTHQUAKE SEISMIC EVALUATION** | Engineering Systems Project
  - Worked as the group leader in a team of 18 people to make a portal for Rapid Visual Screening based on location and its details filled by the user in an online form to warn him regarding the seismic vulnerability of the place and also collect statistical data for analysis.
- **FILE SHARING PROTOCOL** | Computer Networks Project
  - Developed an application layer file transfer protocol, as a client-server model, with support for both TCP/UDP
- **LINUX TERMINAL IN C** | Operating Systems Project
  - Coded a Linux terminal equivalent application environment in C with support to commands like cd, pwd, kill, pkill, vim, cat, supported with redirection operators {"«","»", etc}, grep "|", etc.

- **GAME OF CARROM** | Graphics Project
  - Developed a basic single player game for carrom using OpenGL2 with choices for number of coins, color the player wishes to play for, smoothness, elasticity of the surface and collisions,etc.
- **CYCLONE SHELTER LOCATION FOR ANDHRA PRADESH** | Disaster Management Project
  - Developed an algorithm/code based on several parameters such as connectivity, population density, distance from coast or water bodies, altitude, inundation maps data, etc. to locate cyclone shelters in 4 major cyclone prone districts of Andhra Pradesh. Work has been compiled for publication.
- **CANSAT COMPETITION 2015** | CANSAT Annual Competition
  - Worked in a team of 10 people to make a science vehicle capable to deploy on its own when launched from a rocket at 500m in at- mosphere collecting data like atmospheric temperature, pressure while maintaining a constant speed maintained via rotors and recording a stablised video of Earth without post-processing.

LANGUAGES

PROGRAMMING
C • C++ • C# • Python • OpenCV • OpenGL2
HTML5 • CSS • PHP • MySQL • XML • Ajax • Android
Java • JavaScript • Shell • lua • VHDL • LaTeX

SKILLS
Machine Learning • Matlab
torch• Image Processing
Solid Works(AutoCad)

RELEVANT COURSES TAKEN

- C Programming
- Data Structures
- Digital Logic Processors
- Computer System Organizations
- Signals and Systems
- Mathematics I, II
- Basic Electronic Circuits
- Embedded Hardware Design
- Information Retreival and Extraction
- Computer Vision
- Digital Image Processing
- Statistical Methods in AI
- Computer Networks (Audited)
- Database Systems (Audited)
- Operating Systems (Audited)
- Probability and Random Processes
- VLSI

ACADEMIC ACHIEVEMENTS

- Department Rank 5 at the end of 1st and 2nd year of B.Tech in ECE branch
- Secured an All India Rank of 5214 in IITJEE-2013 (Joint Entrance Exam- Advanced) among 150000 candidates in India.
- Secured a percentile of 99.80 in Joint Entrance Exam-Mains 2013 (JEE-Mains'13) among 1150000 candidates in India.
- Secured a rank of 32 in CANSAT International Competition sponsored by NASA annualy.
- Got selected for Indian Statistical Institute - Kolkata (only about 100 students selected all over India based on objective and subjective Maths paper).