Ujjwal Pasupulety

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Education

National Institute of Technology Karnataka — **Surathkal, Mangalore**
2nd Year B. Tech, Information Technology — *2015-2019*
CGPA:**9.31**/10(As of April 2016)

Delhi Public School South — **Bangalore**
*High School, Percentage:***96.8%** *[99% in Computer Science]* — *2013-2015*
School Topper in Board Examinations

Delhi Public School South — **Bangalore**
Secondary School, CGPA:10/10 — *2007-2013*

Technical Skills

- **Languages** - C/C++, Java, Python, Shell Script, ChucK
- **Tools** - OpenCV, LaTeX, ScikitLearn, ns-3, Git, miniAudicle, MASM

Relevant Coursework

Data Structures and Algorithms, Digital Design, Computer Architecture, Unix Programming, Real Analysis, Integral and Differential Calculus, Graph Theory, Probability Theory

Selected Projects

1: Emotion Detection and Classification(Ongoing)

Using the Haar cascades technique with Python OpenCV Library to detect faces from a live camera feed, followed by extraction important facial features such as the eyes, mouth and eyebrows using corner point detection algorithms and finally categorizing the emotional state by training a computer system with the help of a large dataset of previously categorized images using Deep learning techniques such as convolutional neural networks which will be carried out using the SciKit Learn machine learning Library on Python.

2: Fingerprint detection on low quality images(Ongoing)

Minutiae-based technique is the backbone of many fingerprint recognition studies, where it utilizes the rich local features of a fingerprint, namely termination points and bifurcation.The image-based technique is generally used to match fingerprints based on global features, without the need to extract any reliable minutiae-features.Each of these techniques have their own limitations and the aim is to develop a hybrid method which is composed of appropriate algorithms from both the techniques to finally obtain better recognition rate.

3: Open Source Contribution for Network Simulator 3(under review)

Ported a Perl script that converted a file written in the Felix Connection Vector format into a format more suitable for reading by tmix-ns using C++. Analyzed perl script code line by line and applied the corresponding C++ constructs for file handling to perform the same task. The perl script was initially used for format conversion in Network Simulator 2 but is now outdated with the coming of Network Simulator 3 which required a new format converter.

4: Unix Utility Suite

An Alarm Clock, a weather forecast tool and a newsreader all under one simple GUI based Utility Suite made with the Zenity toolkit. Shell Scripts plus a Python backend for web scraping.

5: Course Management System

A Java based course management system with a GUI, for the IT department which helps students choose their respective electives and manage their credit requirements in addition to knowing their core courses for their current semester. Used Java Swing for the GUI and Object Oriented Programming Concepts.

6: Synthesis of Computer Music using the ChucK programming language

Learned the basics behind Computer generated music,i.e., CompuMusic and developed musical compositions using ChucK, an object oriented audio programming language. Using the inbuilt classes for various instruments and programming techniques like using arrays to store frequency values along with time periods, complete score sheets were created.Music can be found here

7: Improvised Security system for Automated Teller Machines

Improving on the existing security system of ATMs (using 4 -digit pins), the new system assigns a user a pattern password(just like the lock screen of an android smart phone). Upon swiping their cards, the user is displayed a 3x3 matrix of numbers and he/she must input the correct digits corresponding to their assigned patterns. This matrix mutates every time a user tries to make a withdrawal, therefore the pattern is the password. This makes it very hard for hackers to brute force possible combinations and figuring out the pattern since the numbers input previously into the system have no correlation with the new expected inputs. Implemented in TurboC++ IDE using graphics.h library for visualizing patterns. Increases ATM security by a factor of 250 through pattern generated passwords

8: Blackjack Computer Game

Designed a Human versus Computer version of the popular casino game using TurboC++ IDE with the help of graphics.h for adding aesthetic appeal. A random number generator was used to generate card values and suites until either the player or computer won. Statistics were stored in global variables which reset upon recompiling and execution.

9: Technology review blog TechnGizmos

1,20,000+ page views and 250+ likes on Facebook page. Rebranded as www.techngizmos.com from 2012-2013. Explored and implemented various Search Engine Optimization Techniques such as link sharing, writing content based on frequently used keywords and guest posts. Modified the original XML design templates for improving user experience by adding widgets, share buttons and a comment section

Achievements & Extra-curriculars

o Stood **1st** in the school and was inducted into the Roll of Honor in the All India Senior School Certificate Examination
o Karnataka Common Entrance Test (KCET) Rank: **336**
o Joint Entrance Examination (Mains) - All India Rank: **5412**
o National Science Olympiad 2007(SOF)- All India Rank: **398**
o Stood 3rd in Botstacle- robotics competition organized by ISTE, NITK Surathkal
o Ranked 6th in PANGEA- intra-college competitive programming contest organized by the IEEE-NITK Surathkal
o Stood First in Azaadi 70 Quiz on Indian Independence organized by Literary, Stage and Debating Society, NITK
o Won several national level competitions in drawing and painting organized in Kuwait
o Finalist in the 1st Indian edition of HP Codewars held in Bangalore
o Campus Ambassador for Bosch RBEI, NITK
o Executive Member in Indian Society of Technical Education, NITK Chapter
o Member and Publicity Coordinator of Web Enthusiasts' Club, NITK
o Member in TroniX Committee,Electronics Events for Engineer 2016 Technical Fest NITK
o Junior House Captain in school

Interests

Public Speaking, Creative Writing, Poetry, Drawing, Painting, Blogging, Playing the Keyboard, Quizzing