J-8/117   **JASKARAN S. VIRDI**   (91)9041496186
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India

Education

Ropar,Punjab   **Indian Institute of Technology(IIT),Ropar**   Fall 2011-Current

B.Tech in Computer Science and Engineering

CGPA-8.8 (On a 10 point scale after 6 semesters . **Department Rank-2/38**)

Coursework:

Discrete Mathematical Structures,Principles of Electrical Engineering,Real Analysis,Mathematics Lab, Data Structures,Computer Architecture,Programming Languages,Digital Electronics,Algorithms,Operating Systems,Computer Graphics,Software Architecture,Probability and Stochastic processes, Product Design,Artificial Intelligence,Machine Learning*, Digital Image Processing, Computer Vision*, Fuzzy logic*

Independent Coursework:

- Algorithms : Design and Analysis-Coursera-Stanford University(MOOC)-Merit Certificate(100%)

- Machine Learning-Coursera- Stanford University (MOOC)-Merit Certificate(97.8%)

Software Engineering Internship:

ARISTA

Worked, in a team of two, on two projects in the routing team.

1) Worked on the maximum-paths command for setting Equal Cost Multiple Paths(ECMP) in the ISIS routing protocol which would be included in the upcoming EOS(Extensible Operating System-A Linux based OS used in Arista switches) release.

 2) Worked on the distance command for setting up of administrative distances in the OSPFv3 routing protocol which would be included in the upcoming EOS release.

Both projects involved development and writing unit tests.

Exposure to various tools like Emacs(command line code editor),TMUX,OpenGrok(code browsing) and Perforce(version control) and software engineering practices like code reviews and presentations.

Projects

1. **Airborne**: A flight-based GUI game built for Linux using C++/OpenGL.
   Source: https://github.com/jaskaran1/Airborne-GUI-game

2. **9 puzzle problem solver:** Solved the 9 puzzle problem using various search techniques in AI like DFS, BFS, GBFS, A*, IDS and concluded that A* with Manhattan heuristic is the best search technique in terms of time and memory. Source: https://github.com/jaskaran1/CSL302_Artificial_Intelligence/tree/master/9puzzle

3. **Reversi Player:** Used alpha-beta pruning to create an intelligent player of moderate difficulty which can play Reversi against human. Different heuristics such as coin parity, weighted coin parity were used to create an intelligent player. Source: https://github.com/jaskaran1/CSL302_Artificial_Intelligence/tree/master/Reversi

4. **Raytracer:** Implemented a raytracer with Phong Illumination.

   Source: https://github.com/jaskaran1/ComputerGraphics/tree/master/Raytracer

5. **Machine Learning(Coursera)**

   a. Implemented One-Vs-All logistic regression and neural networks for handwritten digit recognition in MATLAB.

   b. Built a spam classifier using SVM(Support Vector Machines).

   c. Used K-means clustering algorithm to compress an image and used Principal Component Analysis to find a low dimensional representation of face images.

   d. Applied anomaly detection algorithm to detect failing servers on a network.

   e. Used collaborative filtering to implement recommender system for movies.

Source: https://github.com/jaskaran1/Coursera_Machine_Learning_Andrew_Ng

6. Implemented an interpreter for a parenthesis based language in C++ using generalized linked list data structure.

   Source: https://github.com/jaskaran1/CSL201_Data_Structures/tree/master/Parenthesis_Language_Interpreter

7. Implemented a Linux shell and a clone shell like program in C using system calls complete with command history and file completion. Source: https://github.com/jaskaran1/CSL333_Shell

Languages:

C++; C (Highly comfortable);

Python; MATLAB (Moderately comfortable)

PHP, Javascript, HTML , ARM assembly,Latex (Prior experience)

Tools:

Linux(Ubuntu), OpenGL,Emacs,Git

Honours & Awards at college:

1. Merit prizes for the 1st,2nd and 3rd semester for being in the top 10% in college in academics.

2. 3rd position in Robosapiens-Cognizance 2012:Was involved in the construction of 2 minibots- a line follower and a wired manual bot with a primitive picking arm according to the problem statement, at IIT,Roorkee.

3. Won a t-shirt and 100$ AWS credits from HackerRank after ranking 145/4069, globally in CodeSprint5.

4. 2nd position in a coding contest organised by www.hackerearth.com consisting of algorithmic problems.

Honours and Awards in school:

- Class XII **Valedictorian**

- <u>7 year scholar award</u> : For academic proficiency for 7 consecutive years.

- <u>Kishore Vaigyanik Protsahan Yojana(**KVPY**) scholarship (2010) awardee</u>: One of the most coveted scholarships in India for students interested in science.

- <u>National Standard Exam of Physics(**NSEP**) 2010-11:</u>Awarded Merit certificate for being in the National **Top 1% of 38994 candidates enrolled**.

Positions of Responsibility held:

- **HackerRank Campus Ambassador:** Being a code enthusiast, my main responsibility was to act as a mediator between HackerRank and the students of my college and make them aware about the various coding competitions being held on the HackerRank platform for the purpose of recruitment to various companies like Quora,Palantir etc.

- **Executive member of the Robotics club of IIT Ropar**:

  o Took classes on basic electronics related to robotics and movement techniques.

  o Designed and constructed a track for IIT Ropar's first intra-robotics competition , **Wayfarer** and was involved in judging the event.