Kaustav Ghosh

Academic Description

Manipal Institute of Technology
2018 – 2022 (ongoing)
B. Tech in Computer Science and Engineering
CGPA: 7.93
Number of completed semesters: 3
Amity International School
12th CBSE Percentage: 91% (2015 - 2017)
Suncity World School
10th CBSE CGPA: 9.8 (2013 - 2015)

Contact Details:

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GitHub: *https://github.com/teetangh*

Interests

Artificial Intelligence, Machine Learning, Deep Learning, Reinforcement Learning, Computer Vision, Robot Operating System

Internships

- **Microsoft-Machine Learning Internship**
  - Started Learning data structures using Python
  - Implemented Simple Machine Learning Algorithms using Sklearn,Keras and Tensorflow

- **United Nations TakenMind-Global Data Analytics Internship**
  - Scripting a personal version of Numpy and Pandas Doucmentation
  - Learning Linear and Logistic Regression and implementing it in Python
  - Creating several boxplots,countplots,heatmaps of several datasets

Academic Projects

- **Food Labs Robotics Startup Interview - ROS Engineer Role**
  - Designed, modelled, constructed and Assembled a plethora of sensors and Robots across multiple software platforms like freeCad, Blender, Gazebo and also fabricated a hotel from floorplan using Gazebo World Editor
  - Created an SDF model of the Velodyne HDL-32 sensor,improved the model's appearance and data output,added Mass/Inertia to the model,used freeCad software to acquire Meshes, Blendr software to refine the metric system and Gazebo model editor to model the Velodyne Lidar structure.
  - Implemented Hokuyo Fake Laser Scanner and Noisy Camera in Gazebo, tweaked the mean and standard deviation of the Gaussian Noise Distribution in the scan and image samples for higher fidelity outputs.
  - Simulated the ROBOTIS waffle-pi or burger TurtleBot3 and constructed a vehicle in Gazebo using Model editor and loaded it with a Depth Camera Sensor for survelliance
  - Implemented existing functionality of Clearpath Husky Robot which uses ROS TF for mapping, Adaptive Monte-Carlo Localisation package based on a prticle filter for state estimation and subsequent Localisation and A*/Dijkstra for global planning and Dynamic Window approach/Timed Elastic Band local planner for local planning to publish velocity commands to base-controller

- **Finland Labs in association with NSS IIT Roorkee - Covid 19 Data Analysis, Time Series Forecasting and Web Scraping**
  Link to Certificate : LaTeX-Tutorial.
  Link to Code : LaTeX-Tutorial.
  - Prepared a complete Data Analyis report on the World-wide COVID-19 attack statistics and used the Facebook's fbprophet Time-series Forecasting library to speculate the number of active corona victim cases in the upcoming days.
  - Also used a corona dataset of my country and the Python folium package for the binding of data to a map for choropleth visualizations. Further used beautifulSoup and Requests HTTP library for Web Scraping of live corona stats.
  - Implemented code snippets for the pre-processing of data, data wrangling and visualized the data via several Matplotlib and Seaborn tools
  - Created neural networks from scratch which facilitated in implementing a machine learning model to recognize the function of an XOR gate without explicitily being programmed.
  - Trained a Deep Learning model using Tensorflow and Keras API for MNIST Handwritten digit Recognition

Workshops Attended

- *Attended Introductory Python Workshop conducted by IE-E&C and got 3 days of hands-on practical Python programming at the workshop.*

- *Attended several Competitive Programming Workshops conducted by IECSE and implemented several data structures and algorithms in C++ with and without the use of STL Library.*

- *Attended the Cloud Computing Workshop held by DSC Manipal in collaboration with Google Developers Student Club where we used Google's Qwik Labs to implement Machine Learning algorithms, Natural Language Processing Algorithms, Speech Recognition.*

- *Attended Machine Learning and Deep Learning Workshops given by DSC Manipal and implemented several machine learning algorithms using Keras and Tensorflow.*

- *Attended a 2-day Machine Learning and Deep Learning Workshop conducted by IIT Kharagpur and implemented some basic artificial Neural Networks, Convolutional neural networks and Recurrent Neural Networks in Python*

- *Attended a 6-day Robot Operating System Bootcamp and learnt how to use ROS framework to interface Robotics components and later used Gazebo and Rviz to simulate artificial/real robots in a virtual environment.*

- *Attended a 3-day Web Development Workshop and implemented the tutorials in HTML, CSS,JavaScript and several of its libraries*

Courses Taken

College Curriculum

Data Structures, Object Oriented Programming with Java, Digital System Design with Verilog, Computer Organization and Architecture, Engineering Mathematics.

Off-Campus Academies and Online Courses

Coding Ninjas-Did C++ programming along with Data Structures and won Top Performer Certificate of Excellence in C++
NPTEL-Basic Electronics,Computer Organization and Architecture, Switching Circuits and Logic Design, Object Oriented Programming with Java,

Positions of Resposibility

- Local Committee Member of IOSD (International Organization of Software Developers)

Technical Section

Software Familiarity:
Anaconda,AutoCAD,Matlab,Keil,Altera MaxPlus 2,VirtualBox,Vm Ware,Oracle SQL,VS Code and Sublime Text
Programming Languages:
Fluent in C/C++,Familiar with Java and Python,Verilog,LaTeX,Linux Shell Scripting, fair acquaintance with ARM assembly programming*(NXP LPC 1768)*
Libraries and Frameworks:
Python-Numpy, Pandas, SciPy,Scikit-Learn,Matplotlib, Keras, Tensorflow
C++-Standard Template Library(STL)
Java-JavaFX GUI
Robotics Libraries and Frameworks:
ROS middleware, Gazebo, Ignition, MoveIt!, Point Cloud Library
Web Developement Languages,Libraries and Frameworks:
HTML, CSS, JavaScript and familiarity with MERN stack
Operating Systems Used:
Windows-XP,Vista,7,10 **Linux**-Ubuntu

Early Years

- Pulled an all nigther in 7th grade to construct a LEGO Mindstorms ev2 Humanoid Robot and programmed it using the NXT-G GUI interface that could walk,talk and identify colors in its environment and showcased it it in a Science exhibition.

- Won Gold medal for 200m sprint and 2 bronze medals fro 100m and 400m in 8th grade.

- Won 1st Prize Trophy at state Level Abacus Competition in 5th grade

- Won 2nd Prize Trophy at state Level Abacus Competition in 4th grade

- Won some gold, silver and bronze medals at the **School Level** Science and Maths Olypaids conducted by **Science Olympiad Foundation**