Kaustav Ghosh

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EDUCATION

Manipal Institute of Technology *2018-2022*
BTech in Computer Science and Engineering specializing in Computational Intelligence *CGPA: 8.45/10*
Interests: Artificial Intelligence and Robotics

INTERNSHIPS

- **Samsung R&D, Bangalore - Software Engineer Intern, IoT Products & Analytics** *Jun'21-Jul'21*
  - Developed and implemented MQTT bridge functionality in Moquette, an open-source lightweight Java MQTT broker
- **Microsoft Student Partners-Machine Learning Intern** *Apr'20-Jun'20*
  -Guided a team of 10 individuals to collaborate and accomplish a Regression task of price prediction of used cars in a machine learning pipeline through Exploratory Data Analysis,Feature Engineering and Model Building. **Projects:** [Minor]. [Major].
- **Qbotics Labs - ROS Engineer Intern** *Jul'20-Aug'20*
  - Constructed a Differential Drive with caster wheel from scratch using URDF and XACRO files and mounted the same with laser scanner , IMU and Velodyne Puck VLP-16 Lidar and simulated the same in Gazebo and Webots **Project:** [Repository].

RESEARCH PROJECTS

- **Samsung PRISM - Intelligent Ranking for Dynamic Restoration in Next Generation Wireless Networks** *Sep'20-Mar'21*
  - Implemented Machine Learning algorithms and Feature Engineering techniques to predict KPI values for eNodeB-s and consequently a ranking system to orderly restore them during network failure.

ACADEMIC PROJECTS

- **Compiler Frontend for subset of C-Language**
  *- Coded a **Lexical Analyser** that extracts tokens from a C source file and a **Symbol Table Generator** to store information of identifiers and functions and a **Recursive Decent Parser** that semantically parses the grammar for subset of C-Language by analysing the tokens generated by a Lexical Analyser* **Code:** [Lexical Analyser + Symbol Table]. [Recursive Decent Parser].
- **Mini Games based on Backtracking**
  *- Coded a **Crossword Solver** that takes a 10*10 grid and word list and outputs a grid with the words accurately filled*
  *- Coded a **Sudoku Solver** that takes a partially filled 9*9 Sudoku grid and outputs a solution so that every row, column and nine 3x3 sub-grids contains exactly 1 instance of the digits from 1 to 9.* **Code:** [Crossword Solver]. [Sudoku Solver].
- **Machine Learning Algorithm Implementations**
  - Implemented basic machine learning algorithms such as Linear Regression, K-Nearest Neighbours, Logistic Regression,K-Means Clustering from scratch without existing machine learning libraries. **Code:** [AI-workspace].
- **Time Series Forecasting, Data Analysis and Web Scraping on Covid-19 data**
  - Prepared a complete Data Analysis 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. **Code:** [Project].
- **Food Labs Robotics Startup Competition**
  - Designed, modelled, constructed and Assembled a plethora of sensors and Robots across multiple software platforms like freeCad,Blender,Gazebo and also fabricated a Defense Building from scratch using Gazebo World Editor **Repository:** [Project].
- **Analysis of Selective Compliance Assembly Robot Arm and Modelling of T3R Robot**
  - Computed DH parameters for the SCARA robot and used it to compute the Forward and Inverse Kinematics of the robot arm and also its Lagrange Euler Dynamics **Repository:** [Project].

TECHNICAL SECTION

Softwares Used: AutoCAD,Matlab,Keil,Altera MaxPlus 2,VirtualBox,Vm Ware,Oracle SQL,GNS 3 Network Simulator
Programming Languages: Fluent in C/C++ & Python ,Familiar with Java ,Verilog,LaTeX,Linux Shell Scripting, fair acquaintance with ARM assembly programming*(NXP LPC 1768)*
Libraries & Frameworks:C++-STL **Java**-JavaFX GUI **Python**-Numpy, Pandas, Scikit-Learn, Keras, Tensorflow , PyTorch
Operating Systems Used:Windows-XP,Vista,7,10 **Linux**-Ubuntu