Kaustav Ghosh

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EDUCATION

Manipal Institute of Technology 2018-2022
BTech in Computer Science & Engineering specializing in Computational Intelligence **Lab Work:** [Repository]. CGPA: 8.51/10

WORK EXPERIENCE

- **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
  - Developed a socket programming system for transfer of messages between the MQTT message broker and the bridge client
  - Developed a lexical analyzer to parse the user-specified configuration of the bridge properties
- **Qbotics Labs - ROS Engineer Intern** Jul'20-Aug'20
  - Constructed a Differential Drive with caster wheel from scratch using URDF & 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].
- **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].

RESEARCH WORK

- **Samsung PRISM - Intelligent Ranking for Dynamic Restoration of 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.

PROJECTS

- **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].
- **Compiler Front-end 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. [Demo] **Source Code:** [Lexical Analyser + Symbol Table]. [Recursive Decent Parser].
- **Finland Labs & IIT Roorkee - Time Series Forecasting, Data Analysis and Web Scraping**
  - Prepared a complete Data Analysis report on 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.
  - Created neural networks from scratch which facilitated in implementing a machine learning model to recognize the function of an XOR gate without explicitly being programmed.**Source Code:** [Project].
- **Machine Learning and Deep Learning Algorithms 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.Implemented few gradient descent algorithms
  Source Code: [AI-workspace]. [Gradient-Descent-Algorithms].

TECHNICAL SECTION

DSA and Competitive Programming: Collection of problems,contests,exercies solved on various sites [Repository].
Programming Languages: Fluent in C/C++ & Python, Familiar with Java, Oracle SQL, Verilog,LaTeX,Linux Shell Scripting
Libraries & Frameworks:C++-STL **Java**-JavaFX GUI **Python**-Numpy, Pandas, Scikit-Learn, Keras, Tensorflow, PyTorch
Software familiarity: Matlab,GNS 3 Network Simulator,VirtualBox,Vm Ware,AutoCAD,Keil,Altera MaxPlus 2
Operating Systems: Linux-Ubuntu 18.04