Kaustav Ghosh

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EDUCATION

Manipal Institute of Technology

2018-2022

CGPA: 8.45/10

BTech in Computer Science and Engineering specializing in Computational Intelligence

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 flyprophet 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 free Cad, 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,IATEX,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