# Kaustav Ghosh

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## EDUCATION

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

## 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*
- **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].
- **TakenMind Technologies - Data Analytics Intern** *May'20*
  *- Worked on analysing Industrial Data, predicting and presenting trends, using techniques such as Exploratory Data Analysis and Data visualisation using Matplotlib and Seaborn.Implemented several barplots, heatmaps, etc on several datasets.Implemented Machine Learning Algorithms (such as Random Forests).Obtained 87% test accuracy.* **Code:** [Notebook].

## RESEARCH WORK

- **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.*

## PROJECTS

- **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 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].
- **Finland Labs & IIT Roorkee - Time Series Forecasting, Data Analysis and Web Scraping**
  *- 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.*
  *- 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.*
  *- Trained a Deep Learning model with TF2 and Keras API for MNIST Handwritten digit Recognition* **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*
  **Code:** [AI-workspace]. [Gradient-Descent-Algorithms].
- **Kaggle - Advanced House Price Prediction Regression Techniques**
  *-With 79 explanatory variables describing (almost) every aspect of residential homes in Ames, Iowa, applied feature engineering and machine learning techniques to predict the final price of each home.* **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
**Libraries & Frameworks:C++**-STL **Java**-JavaFX GUI **Python**-Numpy, Pandas, Scikit-Learn, Keras, Tensorflow, PyTorch
**Operating Systems: Linux**-Ubuntu 18.04 **Windows**-XP,Vista,7,10