ALOK KUMAR

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4th year Mathematics and Computing, Indian Institutes of Technology, Delhi

C-17, Aravali Hostel, **IIT Delhi** Hauz Khas, New Delhi – 110016, India

ACADEMIC DETAILS

- **B.Tech + M.Tech in Mathematics and Computing** Present (2017- 2022)
  Indian Institutes of Technology Delhi
  Cumulative GPA (7.465/10)
- **All India Senior Certificated Examination** (2015-2017)
  Jawahar Navodaya Vidyalaya Kottayam, Kerala, India
  (affiliated to CBSE) **Percentage: 91.8/100**
- **All India Secondary School Examination** (2014-2015)
  Jawahar Navodaya Vidyalaya Buxar, Bihar, India
  (affiliated to CBSE) **Cumulative GPA (10/10)**

COURSES DONE

Data Structures & Algorithms, Analysis & design Of Algorithms, Optimization Methods & Appl., Probability & Stochastic Pro., Real And Complex Analysis, Discrete Mathematics, Statistical Methods, Functional Analysis, Computer Architecture, Operational Management, Calculus, Linear Algebra, Machine Learning

SCHOLASTIC ACHIEVEMENTS

- Qualified **Regional Mathematics Olympiad** (**RMO**) (2014)
- Represented Patna Region for **Indian National Mathematics Olympiad** (**INMO**) (2014)
- Won **Samsung Star Scholarship** (2017-2019)
- Selected for **Panasonic Scholar Program** (2017-2021)

INTERNSHIPS

• **Samsung, Bangalore** (May 2020 - July 2020)**: Resource Allocation and Prediction of distribution of Usage Time of Real Time Customers for N-Dimensional Cloud Computing Service.**

- Implemented an efficient greedy solution for decision making in order to approximate the Maximum overall Profit
- Accepting or Holding or Rejecting a Real Time Customer having constrain for Premium and Non-Premium flows
- Predicted the distribution of Customer's Usage Time of different resources for future arrival of flow
- Used different techniques (**Autoregressive**, **Moving Average**, **Integrated**, **ARIMA**) for Forecasting

PROJECTS

• **Search Engine**: *(Amitabha Bagchi* [Department of Computer Science, IIT Delhi]*)* (October 2018)
- Finding the "most relevant" set of webpages containing desired query according to their relevance order
- Calculating "Probabilistic Relevance", "Term Frequency" and "Inverse Document Frequency" of webpages
- Finding the relevance of collections of webpages with the help of Scoring function

• **Mobile Phone Tracking System**: *(Amitabha Bagchi* [Department of Computer Science, IIT Delhi]*)* (Sept 2018)
- Solving simplified version of fundamental problem of cellular networks
- Switching On/Off a Mobile and keeping track of it's base station
- Finding the shortest path between base station of two phones and establish connection when a phone is called

• **Social Media Platform**: *(Amitabha Bagchi* [Department of Computer Science, IIT Delhi]*)* (Nov 2018)
- Simplified version of publish-subscribe Scoial platform like Twitter, Instagram

- Subscribing/Un-Subscribing to users and publishing New Posts, Share Post, Comments by users
- Reading Posts of subscribed publishers according to the recent post preferred the most

• **Simple Android App**: *(Slef Made)* (May-June 2019)
- Uses “Firebase” Google Cloud Messaging Platform
- To create Customizable Surveys to collect Customers Feedback
- To Submit users Data(like responses to various questions) and required documents

• **Sports league Team(s) Eliminator**: *(Minati De [Department of Mathematics])* (April 2020)
- Find which team(s) have been mathematically eliminated in a sports league given their standing at some point
- Implemented Maximum flow formulation using **Ford-Fulkerson** Algorithm
- Using **Min Cut** found set of team(s) for a proper reasoning behind the elimination of a team

• **Hand Written Digit Recognition**: *(Dr Jayadeva [Department of Electrical Engineering])* (Jan-Feb 2020)
- Made a multiclass neural network classifer that classifes each image as corresponding digit
- Implemented Back Propagation with flexible no of Hidden Layer

TECHNICAL SKILLS

• Languages: C, C++, JAVA, MATLAB, Python
• Software Tools : Android Studio, Autodesk Inventor pro, Jupyter Notebook

EXTRA CURRICULAR ACTIVITIES

• Former **Robotics Club** representative (IIT Delhi)
• Represented Robotics Club IIT Delhi on TechFest-**Asia's Largest ScienceTechnology Fest** at IIT Bombay 2017
• Activity Head for Guest Lecture of Tryst 2019 Technical Fest of IIT Delhi
• Production Executive annual Clutural Festival of IIT Delhi Rendezvous 2019