KARAN KUMAR SINGH **173050014**
Computer Science & Engineering **M.Tech.**
Indian Institute of Technology Bombay **Male**
DOB: 01/03/1994

Examination	University	Institute	Year	CPI / %
Post Graduation	IIT Bombay	IIT Bombay	2019	8.52
Undergraduate Specialization : Computer Science & Engineering				
Graduation	AKTU	MMMUT, Gorakhpur	2017	72.90
Intermediate/+2	CBSE	Central Academy, Gorakhpur	2012	77.40
Matriculation	SEBA(Assam Board)	Elite Engligh Academy, Guwahati	2010	73.16

M. TECH RESEARCH

- **Privacy Analysis in Credit-Based Network**
  *(M. Tech Project, Guide: **Prof. R.K. Syamasundar**)* *(Jan'18-present)*
  - Identified a critical flaw in PrivPay protocol in **Ripple Credit Network** during analysis
  - **Current Work**: Augmenting the flawed PrivPay protocol with application of **Bankers Algorithm** to avoid deadlock and increase its robustness

M. TECH SEMINAR

- **Privacy Analysis in Credit-Based Network**
  *(M. Tech Seminar, Guide: **Prof. R.K. Syamasundar**)* *(Jan'18-Apr'18)*
  - Surveyed the application of **IOweYou*(IOU)*** credit network model as a backbone to real-world permissionless payment settlement networks like Ripple and Stellar
  - Assessed the vulnerability of public-ledger based credit networks to **privacy attacks**
  - Analyzed the papers which worked on **deanonymizing** the wallets in Ripple

INTERNSHIPS AND TRAINING

- **Health-Ok backend development**
  *Internship | Director: **H. R. Jaiswal (Smart Healthzone Pvt. Ltd.)*** *(Oct'15-Apr'16)*
  - Devised business use-cases with incremental inputs from Technical Project Manager
  - Formulated RESTful APIs for the order-query use-cases
  - Integrated API calls with JDBC to ensure efficient processing of JSON objects
- **Research and Training at Ducat Noida** *(May'15-Jun'15)*
  - Awarded grade **A** for completing Java 6Weeks program

COURSES TAKEN

- Foundations of Network Security and Cryptography • Machine Learning • Artificial Intelligence
- Algorithms and Complexity • Implementation Techniques for Relational Database Systems

COURSE PROJECTS

- **Object classification in images using Convolutional Neural Networks**
  *(CS 725: Foundations of Machine Learning, Instructor: **Prof. Ganesh Ramakrishnan**)* *(July'17-Nov'17)*
  - Trained and compared Neural Network models to recognize objects in images
  - Implemented Convolutional Neural Network based AlexNet architecture for image recognition on CIFAR-10 dataset and compared it with other state of the art architectures like GoogleNet, ResNet and VGG
- **Snapshot Support for PostgreSQL**
  *(CS 631: Implementation Techniques for Relational Database Systems, Instructor: **Prof. N. L. Sarda**)* *(July'17-Nov'17)*
  - Implemented snapshot feature using **copy on update** strategy
  - Modified the parser to add DDL commands and added update, delete triggers on base tables
  - Devised a new **SELECT** function on each snapshot table to join both base and snapshot table

- **Devanagari Character Recognition**
  *(CS 621: Artificial Intelligence, Instructor: **Prof. G. Sivakumar**)* *(July'17-Nov'17)*
  - Performed image classification for character recognition on Devanagri Image Dataset
  - Implemented 2 layered fully connected feed forward neural network for classification

- **Cryptocurrency Price Tracker**
  *(CS 653: Mobile Computing, Instructor: **Prof. Vinayak Naik**)* *(Jan'18-Apr'18)*
  - An andorid application to track the cryptocurrency prices and user's portfolio linked to Bitrex Exchange
  - Used Bittrex APIs to list out the prices and other relevant information for more than **200 cryptocurrencies**
  - **Tools/languages used:** Android Studio, Core Java, Volley Library
  - **Playstore:** https://play.google.com/store/apps/details?id=com.bittrexapp.lokesh.bittrexcryptoexchange

OTHER RELEVANT WORK

- **Poker Hand Prediction**
  *(CS 725: Foundations of Machine Learning, Instructor: **Prof. Ganesh Ramakrishnan**)* *(July'17-Nov'17)*
  - Predicted the most likely possible hand using Neural Networks with regularized Stochastic Gradient Descent, given the sequence of 5 cards drawn from a standard deck of cards

TECHNICAL SKILLS

- **Programming Languages**: C, C++, Python, Core Java
- **Tools & Technologies**: Git, LaTeX, Eclipse, MySQL

FIELDS OF INTEREST

- Security • Machine Learning • Database • Algorithms

POSITION OF RESPONSIBILITIES

- Student Companion (**Institute Student Companion Program (ISCP) Team** *(July'18-present)*
  - Worked in a team of 20 members to organize orientation programs, course registrations and informal interaction sessions with Master First Year students
  - Was involved in guiding and supporting mentees on both academic and personal fronts
  - Organized departmental labs visit for freshmen to introduce ongoing research

- Teaching Assistantship
  - **CS101: Computer Programming and Utilization** *(July'17-Nov'17) (Jan'18-Apr'18)*
    - Worked in a team of around 50 TA's, mentored 14 students for programming in C++
    - Evaluated labs, quizes, exams and assisted Professor throughout the course
  - **CS699: Software Lab** *(July'18-present)*
    - Assisted a batch of PG First Year students in weekly in-lab sessions and out-lab assignments. Set question paper for labs/exam

- Assistant Coordinator of an Event **HardRachna** in Techsrijan, MMMUT, 2014 *(Oct'14)*

ACHIEVEMENTS AND EXTRACURRICULAR ACTIVITIES

- Secured **All India Rank 60 among 96878** aspirants in **GATE-2017** *(Mar'17)*
- Awarded **TA of The Month** prize for subject Computer Programming and Utilizationin (IIT Bombay) *(Oct'17)*
- Guided **11 faculties** from across India during TEQIP workshop of Government of India at IIT Bombay *(June'18)*
- Participated in wireless robotics organised by IEEE Student Branch and SAE India Collegiate Club, MMM Engineering College *(Oct'13)*

HOBBIES

- Playing Cricket, Football, and Chess
- Coding, Travelling, and Trekking
- Watching TV Series and Movies