

# Sukhjeevan Bansal

Senior Year Undergraduate  
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## EDUCATION

### IIT KANPUR

BTECH IN MECHANICAL  
ENGINEERING | MINOR IN MACHINE  
LEARNING  
2016-2020 | CGPA: 9.2/10.0

### D.N. MODEL SR. SEC. SCHOOL

INTERMEDIATE  
2016 | 91.8%

### HIGH SCHOOL

2014 | 10.0/10.0

## COURSEWORK

### COMPUTER SCIENCE

Introduction to Machine Learning  
Principles of Database Systems  
Data Structures and Algorithms  
Fundamentals of Computing

### MATHEMATICS

Partial Differential Equations  
Linear Algebra  
Real Analysis and Calculus

## SKILLS

### PROGRAMMING

C • C++ • Python • SQL

### UTILITIES

Robo3T • MongoDB • Jupyter  
MATLAB • GNU Octave • LaTeX

## LINKS

Homepage: @sukhjivn  
GitHub: @sukhjivn  
LinkedIn: @sukhjeevan-bansal

## EXTRA-CURRICULAR

## ACTIVITIES

### SPORTS

- Team Captain in Chess at state level and participated in many other open tournaments and stood 1st in the district 4 times.
- Participated in Sprint, Relay Race and long jump events in Athletics in Inferno, 2016.

### TECHNICAL

- Led a team of 5 in Descon event in Takneek, 2016.

## ACADEMIC ACHIEVEMENTS

- Conferred with **Academic Excellence Award**, IIT Kanpur for the year 2018.
- Selected for **Summer Undergraduate Research Grant for Excellence** (SURGE), IIT Kanpur, given to 150 students all over India in the year 2018.

## EXPERIENCE

### HSBC GLOBAL MARKETS | INTERN

May 2019 - July 2019 | Bangalore

#### VAR PREDICTION

- Analysed the effect of different factors (e.g. free float amount, volatility etc.) on VaR (Value at Risk) and predict it using **machine learning**.
- Employed **Gradient boosting on Decision Trees** algorithm for classification.
- Repeated the above steps at portfolio level by random sampling the stocks.

#### DATABASE DESIGNING

- Implemented **MongoDB** as a database for storing, querying and sharing different types of data efficiently for the Stress Testing Model using pymongo library.
- Found 3 different ways of storing Time Series Data efficiently including bucketing.
- Implemented about 18 most used queries for the model on all three types of data.

### SURGE | RESEARCH INTERN

May 2018 - July 2018 | IIT Kanpur

- Studied dynamics of ellipsoidal objects and derived governing equations of motion.
- Numerically solved the derived equations in MATLAB to analyze its motion.

## PROJECTS

### BANKING MANAGEMENT DATABASE SYSTEM | Prof. Arnab Bhattacharya | Jan'19 - Apr'19

- Designed a Banking Management Platform in **MEAN-Stack**, using AngularJS for frontend, Node.js with Express.js framework for backend and MongoDB database.
- Implemented Authentication and Role-based access control.
- Added functionalities for managing transactions and different types of accounts.

### CAPTCHA BREAKING | Prof. Purshottam Kar | Jul'19 - Nov'19

- Used **OpenCV** tools and functions for preprocessing captchas using pixel manipulation to filter out text from noisy background.
- Built a character classifier using a **CNN** based network for individual identification of letters.

### ARTIFICIAL INTELLIGENCE GAME | Programming Club | May'17 - Jul'17

- Developed a **Battleship game** with the human input playing against AI.
- Designed the AI algorithm using probabilities for selecting the best possible move.
- Programmed the interactive code in python with visual graphics using pygame.

## POSITIONS OF RESPONSIBILITY

### ACADEMIC MENTOR | Counselling Service | May'17 - Apr'18

- Provided academic assistance to students struggling with MTH 101/102 course.
- Conducted remedial classes and doubt clearing sessions at institute and hall level.

### STUDENTS' GUIDE | Counselling Service | May'17 - Apr'18

- Guided 6 freshmen personally to get acclimated to the new college environment.
- Helped in smooth conduction of the 7-day Orientation programme, 2017.