# Keshav Bansal

Third Year Undergraduate
Department of Computer Science and Engineering
Indian Institute of Technology, Kanpur

keshavb@iitk.ac.in
https://keshav22bansal.github.io
keshav22bansal | keshav22bansal
+91-8130557347


## Educational Qualifications

| Year | Degree | Institution | CGPA/% |
|---|---|---|---|
| July'17 – Present | B.Tech, CSE | Indian Institute of Technology, Kanpur | 10.0/10.0 |
| 2017 | CBSE – XII | Ahlcon Public School, New Delhi | 96.2% |
| 2015 | CBSE – X | Apeejay School, Noida | 10.0/10.0 |

## Honours & Awards

- 2017-2020 **Academic Excellence Award**, for meritorious performance, IIT Kanpur
- 2020 **A* grade in ten courses**, for exceptional performance
- 2018 **J.N. Kapur prize**, for the best second year student in Mathematics Courses, IIT Kanpur
- 2017 **All India Rank 782**, JEE Advanced
- 2017 **All India Rank 59**, JEE Main
- 2017 **All India Rank 440**, KVPY Scholarship

## Projects

**Code Mixed Sentiment Analysis** `keshav22bansal/BAKSA_IITK`
*Prof. Ashutosh Modi* Jan 2020 - July 2020

- Participated in Task 9 of SemEval-2020 shared task for sentiment analysis in bilingual code-mixed tweets.
- Used self-attention mechanism to bolster the performance of prevalent CNN architecture by creating an ensemble.
- Utilized multilingual XLM-Roberta Language Model for sub-word embeddings.
- Ranked $5^{th}$ out of 62 teams for Hindi-English code-mixed tweets.

**Log Analyser app** `SnehalRaj/LogAnalyser`
*Nutanix Cloud Init.io Hackathon* March 2019

- Developed a web app to handle log messages generated by microservices distributed across multiple hosts.
- Included features like live debugging, searchable exception patterns, and statistical graphs.
- Declared the winning submission.

**Dcipher** `keshav22bansal/Dcipher.hs`
*Course Project* March 2019

- Developed system for automatic solution of substitution ciphers in Haskell.
- Operating on N-gram model of English characters and stochastic local search over the space of $10^{26}$ possible keys.

**SATisPy SAT Solver** `keshav22bansal/SATisPy`
*Course Project* Oct' 2018

- Implemented a SAT solver to solve satisfiability problems encoded in propositional logic.
- Used Heuristics such as Unit Propagation and Pure Literal Elimination to decrease the running time.
- Created a program to encode a general SUDOKU puzzle and solved it using this SAT solver.

## Work Experience

**Praktice.ai** *Bengaluru, India*
*Data Science Intern* May 2019 - July 2019

- Emulated Google's suggested clip feature for answering medical queries using named entity recognition, and TF-IDF weighted word2vec model vectors.
- Enhanced user's experience by creating a lexicon of complex medical terminologies encountered during conversation with the praktice chatbot using Google search APIs and web scraping.
- Analyzed medical data, and came up with an algorithm to suggest ailments given a set of symptoms.

**Summer of Code** *Kanpur, India*
*Web Development Intern* May 2018 - July 2018

- Developed Web and Android application allowing users to donate excess food to nearby food charities.
- Technologies used - PHP, SQL Server database, Google distance matrix API, Geolocation API, Send Grid API, Microsoft Azure Cloud.
- Awarded the second runner up title.

## Positions of Responsibility

**Project Mentor** *IIT Kanpur*
*Association of Computing Activities* *2020*

- Conducted lectures on Probabilistic Machine Learning for 15 first year undergraduate students.

**Company Coordinator** *at Student's Placement Office, IIT Kanpur, 2018-2019*

## Skills

**Programming Languages**: Python, C++, C, Haskell, Bash
**Libraries**: PyTorch, Tensorflow, Keras, NLTK, Scikit-learn
**Web**: React, JavaScript, PHP, HTML, CSS
**Utilities**: Shell Utilities, Git, MongoDB, LaTeX, Vim

## Relevant Courses

| | | | |
|---|---|---|---|
| Natural Language Processing (*i*) | Introduction to Machine Learning | Advanced Algorithms | Computer Networks (*i*) |
| Modern Cryptology (*i*) | Compiler Design (*i*) | Data Structures and Algorithms | Computer Graphics |
| Computer Organization | Discrete Mathematics | Probability & Statistics | Mathematical Logic (A∗) |
| Computing Lab - 1 | Computing Lab - 2 | Compiler Design | Numerical Methods (A∗) |
| Introduction to Programming (A∗) | Linear Algebra (A∗) | Theory of Computation | Real Analysis (A∗) |

A∗: Grade for exceptional performance, *i*: In progress