

# KESHAV BANSAL

Senior Undergraduate  
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## 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

## PUBLICATIONS

[1] Ayush Kumar\*, Harsh Agarwal\*, **Keshav Bansal\***, Ashutosh Modi: **BAKSA at SemEval-2020 Task 9: Bolstering CNN with Self-Attention for Sentiment Analysis of Code Mixed Text**. *Proceedings of the 14th International Workshop on Semantic Evaluation (SemEval-2020)*  
\* : Equal Contribution

## PROJECTS

### Code Mixed Sentiment Analysis keshav22bansal/BAKSA.IITK 🌐

Research Project under Prof. Ashutosh Modi Jan 2020 - June 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 model.
- Utilized multilingual XLM-Roberta Language Model (a variant of Bert) for sub-word embeddings.
- Ranked *5<sup>th</sup> out of 62 teams* for Hindi-English subtask with an F1 score and recall of 0.707 and 0.705 respectively.

### DeCaptcha keshav22bansal/DeCaptcha 🌐

Course Project October 2019

- Implemented techniques like contour finding and image segmentation to break captcha into individual letters.
- Trained a five-layer CNN model for character recognition using the provided training set of 2000 images.
- Obtained an accuracy of *99 %* on the test set.

### 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.

### Money Manager App keshav22bansal/MoneyManager 🌐

Course Project Oct' 2019

- Developed a mobile app to create a ledger of monetary transactions between friends using ReactJS and React-Native.

### Dcipher keshav22bansal/Dcipher.hs 🌐

Course Project March 2019

- System for automatic solution of substitution ciphers in Haskell using functional programming, operating on stochastic local search over the space of  $10^{26}$  possible keys.

## HONOURS & AWARDS

- 2017-2020 **Academic Excellence Award**, for meritorious performance, IIT Kanpur
- 2017-2020 **Received 11 A\* grade**, for outstanding performance
- 2018 **J.N. Kapur prize**, for the *best sophomore* in Maths Courses
- 2017 **All India Rank 782**, JEE Advanced
- 2017 **All India Rank 59**, JEE Main
- 2017 **All India Rank 440**, KVPY Scholarship

## RELEVANT COURSES

Natural Language Processing, Introduction to Machine Learning, Image Processing (*i*), Big Data Optimization (*i*), Numerical Computation (A\*), Data Mining (*i*), Data Structures and Algorithms, Computer Graphics, Computer Organization, Compiler, Computer Networks, Discrete Mathematics, Linear Algebra (A\*), Computational Physics (A\*)

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

## WORK EXPERIENCE

### Microsoft Hyderabad, India

Software Development Intern May 2020 - July 2020

- Worked in the Azure Compute group to enhance the boot time of virtual machines.
- Analyzed the performance of production algorithm on variety of OS images and identified the optimal values of some of the important parameters.
- Made modifications to burst the maximum throughput available for a crucial period of time, leading to an improvement of *20 %* in the booting time.

### Learngram Bangalore, India

Data Science Intern July 2020 - August 2020

- Built a Deep Learning model to map questions to a set of candidate concepts (topics) in Mathematics domain.
- Modelled the problem as finding semantic similarity between long documents and used a Siamese network.
- Used triplet loss for generating better rankings and extractive summarization to abridge long documents.
- Obtained 65% recall@3 and 75% recall@5.

### Praktice.ai Bengalore, India

Data Science Intern May 2019 - July 2019

- Emulated Google's suggested clip feature for answering medical queries by showing a short video clip.
- Used named entity recognition, and TF-IDF weighted word2vec model vectors for word representations.
- Analyzed medical data and came up with an algorithm to suggest ailments given a set of observed symptoms.

### Summer of Code Kanpur, India

Full Stack Development Intern May 2018 - July 2018

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

## SKILLS

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

## MISCELLANEOUS

- **Tutor** for **Introduction to Programming** course, 2020
- Selected for **Google Research's AI summer school**, 2020
- **Silver medalist** at *Bitgrit Data Science Competition*, 2019
- **Project Mentor** for **Probabilistic ML** at *Association of Computing Activities, IIT Kanpur*, 2020
- **Company Coordinator** at *Student's Placement Office, IIT Kanpur*, 2020