

# Mohd Abbas Zaidi

## Education

- 2015–2019 **Indian Institute of Technology Kanpur,**  
*Major in Electrical Engineering, Minors in Machine Learning & Applications and Cognitive Science.*  
Bachelor of Technology- **Institute Rank 1**(Highest CGPA in Class of 2019), GPA – **10.0/10.0**
- 2014 **City Montessori School, Lucknow,**  
*Indian School Certificate(ISC) Examination, Class 12.*  
Percentage – 96.50%
- 2012 **Anand Bhawan High School, Barabanki,**  
*The Indian Certificate of Secondary Education, Class 10.*  
Percentage – 92.40%

## Experience

- May **Natural Language Processing Intern, SAMSUNG RESEARCH HQ, Seoul, South Korea.**
- 2018–July Generating well-formed answers for AI assistants and chatbots.
- 2018
  - Reached the top of leaderboard for MICROSOFT'S MS MARCO Intermediate challenge.
  - Generated more verbose non-span based answers using words from out of vocabulary
  - Results published on Samsung Newsroom website and many other AI/ NLP blogs
  - Modified the existing ConZNet architecture as per the dataset to speed up the processes
  - Reached Advanced level proficiency in the internal assessment through Samsung's Software tests
- May **Research Intern, INDIAN SPACE RESEARCH ORGANIZATION-IITK SPACE CELL, Kanpur, India.**
- 2017–July STTC + Total Variation based Robust Multimedia Reconstruction.
- 2017
  - Incorporated the bounded variation property of images into Space Time Trellis Codes
  - Designed a single novel joint decoder for both for maximum likelihood and total variation metric
  - Established the superiority of joint algorithm based on theoretical STTC bounds and PSNR results
- May **Machine Learning & Development Intern, POCKETFM, Bengaluru, India.**
- 2019–July Incorporating new search/ recommendation and backend monitoring features in the Hindi Podcast Application
- 2019
  - Deployed a centralized back-end logging system(ELK stack) to automate the process of monitoring error logs
  - Deployed a shipped, filter an indexing framework, dashboards and a mechanism to provide burst error alerts
  - Made the search language agnostic between hindi, english & hinglish semantically and syntactically
  - Used ALS Matrix factorization on RDD database to build recommendation system for the App

## Awards & Achievements

- June 2019 **Professor Putcha Venketeswarlu Memorial Gold Medal, IIT Kanpur.**
  - Best academic performance among all the graduating 4-year undergraduate students in the class of 2019
- June 2019 **General Proficiency Medal, IIT Kanpur.**
  - Best academic performance among all the graduating 4/5 year undergraduate students in the department of Electrical Engineering
- Mar 2019 **Lalit Narain Das Memorial Scholarship, IIT Kanpur.**
  - Highest CGPA among all the undergraduate students in the department of Electrical Engineering at the end of 3rd year
- Feb 2019 **Smt Dharm Vati Garg Scholarship, IIT Kanpur.**
  - Highest CGPA among all the undergraduate students in the final year across all departments
- Mar 2018 **Anita & Santoshi Mehra Foundation Scholarship, IIT Kanpur.**
  - Highest CGPA among all the pre-final year students in the department of Electrical Engineering

2015-2018 **Academic Excellence Award, IIT Kanpur.**

- o Awarded for all three consecutive academic sessions based on annual academic performance

2014- 2019 **Academics.**

- o Outstanding(A\*) grade in 19 out of 44 courses done during the undergrad coursework
- o Highest marks in at least 9 courses during the undergrad coursework
- o 99.98 percentile among 1.3 million candidates appearing for Joint Entrance Examination in the year 2015
- o Ranked among top 1% students in India among those appearing for the Indian School Certificate examination

June 2017 **SURGE, IIT Kanpur.**

Received Summer Undergraduate Research Grant for Excellence 2017 at the MWN Lab, IIT Kanpur

Mar 2018 **ELECTRADE, Techkriti, IIT Kanpur.**

Runner Up, National Level Electronic Circuit building competition

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## Projects

Aug 2017–Nov 2017 **Convolved Neural Network based Real Time Sentiment Analysis, Prof. Purushottam Kar, CSE, IIT Kanpur.**

- o Detects the emotion of the user based on movement of facial muscles taking in webcam feed
- o Achieved an accuracy of over 70% from a set of 6 different emotions in real time
- o Employed Lenet, Mobile Nets and Alex Net for the task, finally AlexNet was used
- o Finds application in deriving **true user reviews** free from implicit biases

Jan 2018–Apr 2018 **Detecting Semantically similar questions, Prof. Harish Karnick, CSE, IIT Kanpur.**

- o Building a binary classification algorithm which predicts whether two questions are similar or not.
- o Proposed a pre-processing approach based on 'Mental Lexicon' concept from Psycho-linguistics.
- o Self-Implemented Siamese and Erolog network finally gave the best accuracy.
- o Developed linguistic constraints to improve the performance of the existing methods to over 85%.

July 2018–Jan 2019 **Removing the Sample Bottleneck Constraint from Gaussian Process Regression , Prof. Ketan Rajawat, SpIN Lab, EE, IIT Kanpur.**

- o Aiming to remove the bottleneck due to  $N^3$  dependence of GP updates on the training sample size.
- o Trying to make Gaussian Processes more suitable for online settings.
- o Established the superiority of Parsimonious Online Processes over Sparse Online Gaussian Process

Aug 2018–Dec 2019 **Coherent Sentence & Paragraph Reordering , Prof. Arnab Bhattacharya, CSE, IIT Kanpur.**

- o To build a data-set for the problem of coherent sentence and paragraph reordering.
- o To design multiple deep-net architectures suitable for the above mentioned task
- o Coherent reordering finds applications in multi-document summarisation and even QA systems.

Feb 2019–Apr 2019 **Image Processing: Object Detection & Analysis, Prof. KS Venkatesh, EE, IIT Kanpur.**

- o To detect simple shapes and objects from an Image using only bottom up IP techniques
- o To analyze the objects and output basic features like shape and dimension

July 2018–Jan 2019 **Kernel Approximation Techniques, Prof. Ketan Rajawat, EE, IIT Kanpur.**

- o To analyze kernel approximation techniques & to extend their application in constrained settings
- o Got credit for extraordinary work done during the term paper under the course EE604

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## Skills

Languages Python, C/C++, Java

Frameworks Keras, Tensorflow, Apache Spark, Redis

Software/  
Packages MATLAB, Android Studio, Arduino IDE, Processing

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## Relevant Courses

Machine Learning Introduction to Machine Learning, Introduction to Natural Language Processing, Data Mining, Convex Optimization, Image Processing

Cognitive Science Foundations of Cognitive Science, Neurobiology, Human Perceptual Processes, Computational Cognitive Science, Psychology of Language

Electrical Engineering	Digital Signal Processing, Principles of Communication, Communication Systems: Information Theory, Coding Theory, Introduction to Wireless Communication, Signals-Systems & Networks, Introduction to Electronics, Microelectronics, Digital Electronics, Control Systems Analysis, Electromagnetic Theory, Power Systems
Mathematics	Probability & Statistics, Linear Algebra, Differential Calculus, Ordinary/ Partial Differential Equations, Complex Variables(Calculus)
Humanities	Introductory Sociology, Introduction to Economics, Social Psychology

## Teaching

- Jan 2019- **Electrical Engineering Laboratory, IIT Kanpur, Teaching Assistant, Prof. Baquer Mazhari.**  
 Apr 2019   ○ Compiled resources related to EC experiments to encourage student choose projects ambitiously  
               ○ Mentored students during one-on-one interactions for project related work
- Apr 2016- **Counselling Service, IIT Kanpur, Academic Mentor, ESC101A, Fundamentals of Computing.**  
 Apr 2017   ○ To mentor freshmen by conducting classes at Institute and Hostel level in a basic programming course  
               ○ Held one-to-one mentoring sessions for 5 students facing serious issues in the course

## Extra Curriculars

- Feb 2017- **Counselling Service, IIT Kanpur, Member, Core Team Operations.**  
 Mar 2018   ○ Helped( at an individual level) over a dozen students under academic probation to return to normalcy  
               ○ Led a team of 138 Student Guides and ensured a smooth conduction of a 6-day Orientation Programme  
               ○ Conducted Personality Enhancement Classes to help the students develop good communication skills
- July 2018- **Grievance Redressal Committee, IIT Kanpur, Member, Director, IIT Kanpur.**  
 Mar 2019   ○ Looked into irregularities during the conduction of election to various posts of Student's Gymkhana  
               ○ Cancelled the election for a couple of posts based on malpractices committed during and before the election period
- Aug 2016-Feb 2017 **Counselling Service, IIT Kanpur, Student Guide.**  
                           ○ Mentored a group of 8 students throughout their stay at the campus  
                           ○ Provided emotional assistance to freshmen students by acting as a link between the students and the professional
- Aug 2016-Feb 2017 **Students Placement Office, IIT Kanpur, Company Coordinator.**  
                           ○ Coordinated the placement, internship tests and interview processes for a number of recruiters
- Aug 2018-Apr 2019 **Students Gymkhana, IIT Kanpur, Senior Year Mentor.**  
                           ○ Mentored around 20 freshmen in issues related to academics, and campus-life in general
- June 2016- **Antaragni, IIT Kanpur, Senior Executive, Public Relations.**  
 Oct 2016   ○ Performed shortlisting and database management of dignitaries and artist for a plethora of events