Mohd Abbas Zaidi

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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 GPA in Class of 2019), GPA – **10.0/10.0**

2014   **City Montessori School, Lucknow**,
Indian School Certificate(ISC) Examination, Class 12.
Percentage – 96.50%

Experience

Sep 2019–   **Software Engineer | Next AI Solutions**, Samsung Research HQ, Seoul.
Natural Language Processing and Speech Recognition Group.
- Research work focused around machine translation and speech recognition.
- Works published in ACL 2020, IWSLT and ICASSP2021

May 2018–Jul 2018   **Natural Language Processing Intern**, Samsung Research HQ, Seoul, South Korea.
Generating well-formed answers for AI assistants and chatbots.
- 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

May 2017–Jul 2017   **Research Intern**, Indian Space Research Organization-IITK Space Cell, Kanpur, India.
STTC + Total Variation based Robust Multimedia Reconstruction.
- 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
- Work was **published** in IEEE Access Journal (Volume: 8), April 2020

May 2019–Jul 2019   **Machine Learning & Development Intern**, PocketFM, Bengaluru, India.
Machine Learning
- 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
Backend Development
- 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

Publications

May 2020   **Hierarchical Trellis Based Decoder for Total Variation Sequence Detection (TVSD) in Space-Time Trellis Coded (STTC) Wireless Image/Video Communication**, *IEEE Access Journal*.
Ankit Kudeshia, **Mohd Abbas Zaidi**, Aditya Jagannatham, Chandra Prakash

Jul 2020   **End-to-End Simultaneous Translation System for IWSLT2020 Using Modality Agnostic Meta-Learning**, *ACL 2020*.
Houjeung Han, **Mohd Abbas Zaidi**, Sathish Indurthi, Nikhil Kumar, Beomseok Lee, Sangha Kim

Jul 2020   **End-to-End Offline Speech Translation System for IWSLT 2020 using Modality Agnostic Meta-Learning**, *ACL 2020*.
Nikhil Kumar, Beomseok Lee, Sathish Indurthi, Houjeung Han, **Mohd Abbas Zaidi**, Sangha Kim

Jan 2021   **Task Aware Multi-Task Learning for Speech to Text Tasks**, *ICASSP 2021*.
Sathish Indurthi*, **Mohd Abbas Zaidi***, Nikhil Kumar Lakumarapu, Beomseok Lee, Hyojung Han, Seokchan Ahn, Sangha Kim, Chanwoo Kim, Inchul Hwang

Jan 2021 **Faster Re-translation Using Non-Autoregressive Model For Simultaneous Neural Machine Translation**, *ACL 2021(submitted)*.

Hyojung Han, Sathish Indurthi, **Mohd Abbas Zaidi**, Nikhil Kumar Lakumarapu, Beomseok Lee, Sangha Kim, Chanwoo Kim, Inchul Hwang

Awards & Achievements

October 2020 **Samsung Best Paper Award**, *Samsung Research*.
Won the SBPA Bronze for the 'Faster Retranslation using Non-Auto-regressive model, FReTNA'

May 2020 **Samsung Foldable App Hackathon**, *Samsung Research*.
Won the 2nd prize after idea-conception, design and development of a new application for Samsung Galaxy Fold

Jun 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

Jun 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 final year undergraduate students in the department of Electrical Engineering

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*.
Awarded for all the three consecutive academic sessions based on annual academic performance

2014- 2019 **Academics**.
- Outstanding(A*) grade in 19 out of 44 courses done during the undergrad coursework
- Highest marks in at least 9 courses during the undergraduate coursework
- 99.98 percentile among 1.3 million candidates appearing for Joint Entrance Examination in the year 2015
- Ranked among top 1% students in India among those appearing for the Indian School Certificate examination

Mar 2018 **ELECTRADE, Techkriti**, *IIT Kanpur*.
Runner Up, National Level on the spot Electronic Circuit building competition

Jun 2017 **SURGE**, *IIT Kanpur*.
Received Student's Undergraduate Research Grant for Excellence 2017 at the MWN Lab, IIT Kanpur

Selected Projects

Aug 2017–Nov 2017 **Convoluted Neural Network based Real Time Sentiment Analysis**, *Prof. Purushottam Kar, CSE, IIT Kanpur*.
- Detects the emotion of the user based on the input video coming from the webcam feed
- Achieved an accuracy of over 70% from a set of 6 different emotions in real time
- Employed Lenet, Mobile Nets and Alex Net for the task, finally AlexNet was used
- 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*.
- Building a binary classification algorithm which predicts whether two questions are similar or not.
- Proposed a pre-processing approach based on 'Mental Lexicon' concept from Psycho-linguistics.
- Siamese and Erogol network finally gave the best accuracy.
- Developed linguistic constraints to improve the performance of the existing methods to over 85%.

Jul 2018- Jan 2019 **Removing the Sample Bottleneck Constraint from Gaussian Process Regression**, *Prof. Ketan Rajawat, SpIN Lab, EE, IIT Kanpur*.
- Aiming to remove the bottleneck due to N^3 dependence of GP updates on the training sample size.
- Trying to make Gaussian Processes more suitable for online settings.
- 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*.
- To build a data-set for the problem of coherent sentence and paragraph reordering.
- To design multiple deep-net architectures suitable for the above mentioned task
- 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.* ○ To detect simple shapes and objects from an Image using only bottom up IP techniques ○ To analyze the objects and output basic features like shape and dimension
Jul 2018- Jan 2019	**Kernel Approximation Techniques**, *Prof. Ketan Rajawat, EE, IIT Kanpur.* ○ To analyze kernel approximation techniques & to extend their application in constrained settings ○ Got credit for extraordinary work done during the term paper under the course EE604

Skills

Languages	Python, C/C++, Java
Extensively used	Keras, Tensorflow, PyTorch, MATLAB
Occasionally used	Apache Spark(PySpark, Redis), Android Studio, Arduino IDE, Processing

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- Apr 2019	**Electrical Engineering Lab, IIT Kanpur**, *Teaching Assistant*, EE381A, *Prof. Baquer Mazhari*. ○ Mentored students during the project component of the course ○ Compiled resources related to Electronic Circuit experiments to help students decide the project
Apr 2016- Apr 2017	**Counselling Service, IIT Kanpur**, *Academic Mentor*, ESC101A, Fundamentals of Computing. ○ To mentor freshmen by conducting classes at Institute and Hostel level in a basic programming course ○ Held one-to-one mentoring sessions for students with unsatisfactory performance in the course

Extra Curriculars

Feb 2020- Present	**IIT- Alumni Association, South Korea**, *Vice President, Operations*. ○ Responsible for website management and event planning in the organisation
Feb 2017- Mar 2018	**Counselling Service, IIT Kanpur**, *Member, Core Team Operations*. ○ Mentored the students placed under academic probation by the institute to help them return to normalcy ○ Led a team of 138 Student Guides while conducting 6-day Orientation Programme for freshers ○ Conducted Personality Enhancement Classes with the help of professional counsellors during the summer break
Jul 2018- Mar 2019	**Grievance Redressal Committee, IIT Kanpur**, *Member*, Director, IIT Kanpur. ○ Looked into irregularities during the conduction of general elections to various posts of Student's Gymkhana ○ Recommended cancellation of elections for a couple of executive posts based on the malpractices committed
Aug 2016-Feb 2017	**Counselling Service, IIT Kanpur**, *Student Guide*. ○ Mentored a group of 8 students from the junior batch throughout their stay at the campus
Aug 2016-Feb 2017	**Students Placement Office, IIT Kanpur**, *Company Coordinator*. ○ Coordinated the conduction of tests and interviews for a number of firms during the recruitment drive
Aug 2018-Apr 2019	**Students Gymkhana, IIT Kanpur**, *Senior Year Mentor*. ○ Mentored around 20 freshmen in issues related campus-life during the final year at college