

UTKARSH TYAGI, DEPARTMENT OF COMPUTER SCIENCE

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EDUCATION

Delhi Technological University

Bachelor of Technology in Computer Science - GPA 8.7/10, Major GPA 9.05/10 (Top 5%)

2017 – 2021

Delhi, India

Apeejay School, Pitampura

A.I.S.S.C.E (2017) 91.8% — A.I.S.C.E (2015) - 10 CGPA

2014 – 2017

Delhi, India

RESEARCH EXPERIENCE

GAMMA Lab, University of Maryland

Research Collaborator

College Park, Maryland

August 2022 – Present

- Collaborating with **Dr. Dinesh Manocha** in the areas of Speech and Natural Language Processing
- Developed a computationally efficient SOTA model for multi-lingual emotion recognition in conversations. Also extended the benchmark dataset to 4 more languages. Submitted our results to **ICASSP 2023**.
- Worked on selective-denoising based data augmentation for low resource Complex named entity recognition and submitted our results to **ACL 2023**

Multimodal Digital Media Analysis Lab

Machine Learning Researcher

IIITD, Delhi

April 2022 – Present

- Working under the supervision of **Dr. Rajiv Ratn Shah** on multi-lingual automatic speech scoring systems for low-resource Indian languages.
- Developed a multi-modal span-based model for detecting and correcting disfluencies in spoken utterances. Achieved **SOTA** results and submitted the paper to **ICASSP 2023**.
- Proposed a novel architecture to detect implicit hate speech using hyperbolic graph convolution networks. Paper accepted at **AAAI 2023** workshop: **Defactify**

Samsung Innovation Lab

Research Intern

Delhi Technological University

Feb 2020 – Jan 2021

- Developed an AI-powered mobile camera-based application to calculate sustained attention span using a candle flame test. Targeted and researched ADHD-impacted and healthy children to help improve their focus through yogic exercises
- Worked on a pupil tracking algorithm using image segmentation
- Recorded an average sustained attention increase of **3.3%** within 10 days and published the paper in **COMSNETS'21**

INDUSTRY EXPERIENCE

Atlassian India LLP

Software Development Engineer 2

Bangalore, Karnataka

July 2021 – Present

- Working on Atlassian's recommendation engine to contextually and relevantly recommend apps for existing customers, and help improve key business metrics and the customer lifetime value.
- Contributed to the modernization of the legacy issue-create experience and improved the product's performance and reliability
- Achieved **99.996% frontend reliability** and scaled the experience for over 250k customers with more than 1M issues created every month. Improved performance TTI from 3.9s to **1.5s** using modern technology stack

Software Engineer Intern

Jan 2021 – June 2021

- Identified the limitations for improvements and bottlenecks in the existing legacy API implementation and proposed revamping. Utilized this performant API to develop the user interface.
- Reduced the **latency** of modal load by **95.57%** by avoiding redundant server-side database queries and scaled to 100l customers.

Samsung R&D Institute Bangalore

Machine Learning Intern

Bangalore, Karnataka

May 2020 – July 2020

- Worked with the voice intelligence team of Samsung to improve Bixby's wakeup word detection. Researched keyword spotting techniques using deep learning and built a vocabulary-independent, lightweight keyword spotter
- Utilised 100,000 audio samples to achieve **93.6% true acceptance** and **false acceptance of 3.53** per hour to further the research of migrating Bixby from traditional models

PUBLICATIONS [\[Updated List\]](#)

- Ghosh S, **Tyagi U.**, Kumar S., Suri M., Manocha D. (2023) "ACLM: Selective-Denoising based Data Augmentation for Low-Resource Complex NER" **ACL 2023** (In Review) [\[link\]](#)
- Ghosh S, **Tyagi U.**, Kumar S., Suri M., Rajiv Ratn Shah (2022) "A novel multimodal dynamic fusion network for disfluency detection in spoken utterances" **ICASSP 2023** (In Review) [\[link\]](#)
- Ghosh S, S. Manan, C. Purva, **Tyagi U.**, Rajiv Ratn Shah (2022) "Context matters! Implicit hate speech classification using a Social and Conversational-Context synergized network" **AAAI 2023: Defactify** (Accepted) [\[link\]](#)
- Ghosh S, Ramaneswaran S., **Tyagi U.**, Srivastava H., Lepcha S., S Sakshi, Manocha D. (2022) "M-MELD: A multilingual multi-party dataset for emotion recognition in conversations" **ICASSP 2023** (In Review) [\[link\]](#)
- Kumar A., **Tyagi U.**, Grover T., Ghosh A. (2022) "Fighting Media Hyper-partisanship With Modern Language Representation Models" Proceedings of Data Analytics and Management **ICDAM 2021** [\[link\]](#)
- D. Sethia et al., "mFlameGaze: Mobile-Based Flame Gazing for Improving Sustained Attention" 2021 International Conference on COMMunication Systems & NETworkS **COMSNETS 2021** [\[link\]](#)
- A. Sharma and **Tyagi U.**, "A Hybrid Approach of ANN-GWO Technique for Intrusion Detection" 2021 International Conference on Recent Trends on Electronics, Information, Communication & Technology, 2021 **RTEICT 2021** [\[link\]](#)
- Jain M., Beniwal R., Ghosh A., Grover T., **Tyagi U.** (2019) Classifying Question Papers with Bloom's Taxonomy Using Machine Learning Techniques. Advances in Computing and Data Sciences. **ICACDS 2019** [\[link\]](#)

PATENTS

- "Apparatuses, methods, and computer program products for generating and selectively outputting abstractive context summaries for multi-party communication channels" (**U.S. Patent Application No. 17/936,705**) (patent-pending)
- "Apparatuses, methods, and computer program products for generating an abstractive context summary scheduling interface configured for scheduling and outputting abstractive context summaries for multi-party communication channels" (**U.S. Patent Application No. 17/936,695**) (patent-pending)

PROJECTS

Occluded Facial Expression Recognition | *Deep Learning, Image Processing* **January 2021**

- Developed a framework for recognizing facial expressions in occluded images using non-occluded images as privileged information
- The technique rendered an average gain of 3.90% over the baseline for 3 standard benchmarking datasets

ANN-GWO Intrusion Detection System | *Neural Networks, Swarm Algorithms* **October 2020**

- Developed a hybrid IDS by using Grey Wolf Algorithm instead of backpropagation with artificial neural networks
- Utilized MIT Darpa 1998 dataset and achieved SOTA results

TECHNICAL SKILLS

Languages: C, C++, Python, Java, HTML/CSS, JavaScript, SQL

Frameworks: Pytorch, FastAI, Tensorflow, Scikit-Learn, ReactJS, Jest, Enzyme, LightGBM, NLTK, Numpy, Pandas

Certifications and Training:

- Machine Learning by Stanford University
- Competitive Programming by St Petersburg University
- Game Theory by Stanford University
- Data Analysis with Python by IBM

RELEVANT COURSEWORK

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|---------------------------|----------------------------------|-------------------------------|
| • Artificial Intelligence | • Big Data Analytics | • Compiler Design |
| • Computer Networks | • Data Structures and Algorithms | • Database Management Systems |
| • Operating Systems | • Software Engineering | • Theory of Computation |

ACHIEVEMENTS

- **JEE Mains 2017: 99.49%** percentile, Pan India
- **People's choice award 2021 & 2022:** Atlassian's internal hackathon
- **Winner** of Digital Management Inc. India Hackathon, 2019
- **2nd position** in Student Hackday 2019 organised by Skillenza
- **Barclays India Hackathon 2019 Top 4**, All India
- Achieved **5 star rating** on Codechef platform for competitive programming

LEADERSHIP/EXTRACURRICULAR

All India AI/ML Masters Community (AIMC)

July 2020 – May 2021

Executive Manager

Delhi Technological University

- Managed a community of over 1200 students with a goal to provide world class opportunities by engaging companies, universities, professors, thought leaders and students from all over the world
- Took mock interviews to help students prepare for placements and organised guest lectures by industry leaders

Katalyst NGO

July 2021 – August 2021

Volunteer

Pitampura, Delhi

- Planned and executed a techfest event organised for economic empowerment of women
- Interacted with hundreds of students from colleges across India and gave advice on job and internship interviews

Coding Ninjas

September 2018 – January 2019

Teaching Assistant

Pitampura, Delhi

- Furnished support in planning the lectures for the Machine Learning and Deep Learning course provided by the institute
- Organised doubt sessions and helped students in their assignments and projects