UTKARSH TYAGI, DEPARTMENT OF COMPUTER SCIENCE

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EDUCATION

Delhi Technological University   **2017 – 2021**
*Bachelor of Technology in Computer Science - GPA **8.7**/10, Major GPA **9.05**/10 (Top **5%**)*   *Delhi, India*

Apeejay School, Pitampura   **2014 – 2017**
*A.I.S.S.C.E (2017) **91.8%** — A.I.S.C.E (2015) - **10 CGPA***   *Delhi, India*

RESEARCH EXPERIENCE

GAMMA Lab, University of Maryland   **College Park, Maryland**
Research Collaborator   *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**.
- Currently working on detecting complex named entities in text and a Text-To-Speech model for Indian languages

Multimodal Digital Media Analysis Lab   **IIITD, Delhi**
Machine Learning Researcher   *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   **Delhi Technological University**
Research Intern   *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   **Bangalore, Karnataka**
Software Development Engineer 2   *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   **Bangalore, Karnataka**
Machine Learning Intern   *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., 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
- Game Theory by Stanford University
- Competitive Programming by St Petersburg University
- Data Analysis with Python by IBM

RELEVANT COURSEWORK

- Artificial Intelligence
- Computer Networks
- Operating Systems
- Big Data Analytics
- Data Structures and Algorithms
- Software Engineering
- Compiler Design
- Database Management Systems
- 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