

PEYA MOWAR

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Human-Centered and Responsible AI · Computer Vision · Accessibility · ICTD

Research Experience

Microsoft Research India *Research Fellow*

Nov 2021 – present

↪ Advised by: [Dr. Saikat Guha](#), [Tanuja Ganu](#)

Technology and Empowerment (TEM) Group

- Interviewed **20+** blind users to understand their news consumption behavior and barriers in accessing news.
- Building systems to make long-form content (e.g., newspapers) in English and Hindi accessible to the print-impaired.
- Leveraging state-of-the-art instance segmentation models (e.g., Faster R-CNN) and Azure Cognitive Services OCR.
- Delivering accessible e-paper (“The Hindu”) to **32** blind users and incorporating their inputs for the past **7** months.

Trinity College Dublin *Research Intern*

Jan 2021 – Aug 2021

↪ Advised by: [Prof. Khurshid Ahmad](#)

- Created a political sentiment lexicon in Hindi from the Dainik Jagran news corpora (comprising of **19k** articles).
- Studied impact of investor sentiment during elections on the financial market using regressive analysis (e.g., VAR).

Delhi Technological University (DTU) *Undergraduate Researcher*

Jan 2020 – Jun 2021

↪ Advised by: [Prof. Dinesh Kumar Vishwakarma](#), [Prof. Ashima Yadav](#)

Biometric Research Laboratory

- Redefined and predicted clickbaits in social media without the use of meta-features (e.g., likes, comments) on posts.
- Curated and manually annotated an affective video dataset of **120,000+** movie trailer keyframes.

IIT Delhi Technology and Business Incubation Unit *Research Intern*

Nov 2020 – Jan 2021

↪ Advised by: [Dr. Sarita Ahlawat](#)

Aerogram

- Interpolated particulate values from air pollution sensor data for navigation and opportunistic selection of locations.

Publications and Preprints

[W.1] **Towards Optimizing OCR for Accessibility** [\[paper\]](#)

(S=In submission, W=Workshop, C=Conference)

[Peya Mowar](#), [Tanuja Ganu](#), [Saikat Guha](#)

In AVA: Accessibility, Vision, and Autonomy Meet (CVPR 2022 Workshop)

[S.3] **Understanding Voice Search Use by Emergent Smartphone Users in India**

[Meghna Gupta](#), [Peya Mowar](#), [Indrani Medhi Thies](#)

Working Paper

[S.2] **Impact of Sentiment in National Languages: A Hindi Case Study**

[Peya Mowar](#), [Khurshid Ahmad](#)

Working Paper

[S.1] **Clickbait in YouTube: Prevention, Detection and Analysis of the Bait** [\[preprint\]](#)

[Peya Mowar*](#), [Mini Jain*](#), [Ruchika Goel](#), [Dinesh Kumar Vishwakarma](#) (* = Equal Contribution)

Under review at ACM Transactions on Intelligent Systems and Technology (TIST)

[C.2] **Fishing out the phishing websites** [\[paper\]](#)

[Peya Mowar*](#), [Mini Jain*](#) (* = Equal Contribution)

In 2021 IEEE Conference on Cyber Situational Awareness, Data Analytics and Assessment (CyberSA)

[C.1] **Clickbait in Social Media: Detection and Analysis of the Bait** [\[paper\]](#)

[Mini Jain*](#), [Peya Mowar*](#), [Ruchika Goel*](#), [Dinesh Kumar Vishwakarma](#) (* = Equal Contribution)

In 2021 55th Annual Conference on Information Sciences and Systems (CISS)

Education

Delhi Technological University (Formerly, Delhi College of Engineering), Delhi

2017 – 2021

B. Tech. Information Technology

CGPA: **9.12/10.00**

Industry Experience

Morgan Stanley *Cohort of Technology Analyst Program 2021*

Aug 2021 – Nov 2021

Underwent an intensive **12-week** training covering OS (Windows/Unix), C++ (taught by [Bjarne Stroustrup!](#)), Java, C#, Databases, Systems Architecture, Distributed Systems, UI/UX Patterns and Web Applications.

Morgan Stanley *Technology Analyst Intern, Institutional Securities Technology*

May 2020 – Aug 2020

Transformed securities data from a key vendor and loaded it into proprietary databases leading to a **60% drop** in latency. Developed a GUI for tracing data lineage. Tech Stack: Java Spring, KAFKA, MongoDB and Angular.

Relevant Projects

Voice search for low-literate users

Mar 2022

Conducted **10** task-based observations to understand the usage of voice search and propose recommendations for designing it for emergent low-literate smartphone users in India.

Clickbait in visual social media platforms [paper1][preprint2][dataset]

Aug 2020 – Jun 2021

↪ Bachelor's Thesis

Advisor: Dr. Dinesh Vishwakarma

Redefined clickbaits for visual social media platforms (e.g., Instagram and YouTube). Designed a novel classification model by focusing on the dissonance between the descriptors (e.g., title, thumbnail) and the content (e.g., video). The model was agnostic to the users' reaction (e.g., comments, likes) to the posts thus enabling real-time detection.

Identifying phishing websites [paper][dataset]

Aug 2020 – Dec 2020

Developed a classification model to detect phishing websites using lexical, rule-based, script-based and content features, trained on a dataset with **19k+** phishing websites, to combat domain-generated, algorithm-driven attacks.

EmoGDB: Emotion-based genre detection for Bollywood [source]

Jan 2020 – Aug 2020

Analysed the relationship between the emotions elicited by movie trailers and how they contribute in solving the multi-label genre classification problem by curating an affective video dataset with **120k+** annotated keyframes.

Divya Drishti [media coverage - Times of India (print)]

Jan 2019

Designed for navigability of visually impaired, developed an Android application coupled with an ultrasonic sensor and Arduino to detect and warn about objects in front, narrate the surrounding scene and also recognise friends.

Talks

"Towards Optimizing OCR for Accessibility"
"Democratizing Printed Content"

EMPOWER 2022, IIT Madras Research Park
TEM Reading Group, Microsoft Research India

Awards and Achievements

- CyberSA conference **registration waiver** (worth €270) by C-MRIC for independent student research. **2021**
- University **rank 1 with 10.00/10.00 GPA** in the VI semester out of 2360 students. **2020**
- **99.68** percentile in JEE Mains examination among 1.2 million students. **2017**
- Received a letter of appreciation for being in the **top 1%** students from the HRD Minister of India. **2015**
- Gold medal awarded at high school for displaying academic excellence for **6** consecutive years. **2015**

Course Work and Technical Skills

- **Relevant Courses:** Discrete Mathematics, Modelling and Simulation, Artificial Intelligence and Expert Systems, Machine Learning, Technical Communication, Probability and Statistics⁺, Natural Language Processing⁺, Human-centered Design^{*}, Affective Computing[#], Deep Learning^{*} (*=Coursera, #=MIT OCW, +=NPTEL)
- **Languages and Frameworks:** C++, Python, Java, Git, PyTorch, TensorFlow, OpenCV, Scikit-Learn, NLTK

Leadership and Volunteering

Creative and Design Head

Society of IT Engineers

- Event Head at Invictus (DTU's Annual TechFest with a footfall of **25k+**): led funding, publicity and logistics.
- Invited researchers, startup founders (college alumni) and eminent faculty for giving technical talks to students.
- Mentored **20+** junior undergraduate students in collaboration with Project Ascensio in research and engineering.

Director of Meets

Rotaract Club of DTU Regency

- Tutored under-privileged kids at GyanKunj for **6** months by teaching computer science and conducting lab sessions.
- Organized fundraising events (e.g., Diwali Mela), a blood donation camp and book donation drive in college campus.

References

Dr. Saikat Guha Senior Principal Researcher, Microsoft Research India
Tanuja Ganu Principal Research SDE Manager, Microsoft Research India
Dr. Mohit Jain Principal Researcher, Microsoft Research India
Prof. Khurshid Ahmad Chair of Computer Science, Trinity College Dublin
Prof. Dinesh Kumar Vishwakarma Professor, Delhi Technological University