PEYA MOWAR

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Artificial Intelligence · Computer Vision · Human-Computer Interaction · Accessibility

Education

Carnegie Mellon University - School of Computer Science — **Pittsburgh, PA**
Master of Science in Robotics | GPA: 4.00/4.00 — Aug. 2025

Delhi Technological University (Formerly, Delhi College of Engineering) — **Delhi, India**
Bachelor of Technology in Information Technology | GPA: 9.12/10.00 — Jul. 2021

Research Experience

Carnegie Mellon University *Graduate Research Assistant* — **Pittsburgh, PA**
↪ Advised by: Prof. Jeffrey P. Bigham, Prof. Aaron Steinfeld — Robotics Institute | Sep. 2023 – Present

- Exploring the potential of Codex models in generation and evaluation of accessible robotic interfaces.

Microsoft Research India *Research Fellow* — **Bengaluru, India**
↪ Advised by: Dr. Saikat Guha, Dr. Mohit Jain — Technology and Empowerment | Nov. 2021 – Jan. 2023

- Conducted a user study with **17** blind and low vision participants to examine their news consumption behaviour.
- Built a document segmentation system for making e-papers accessible by iterative prototyping with **32** blind users.
- Optimised optical character recognition (OCR) systems for enhancing the accessibility of long-form print content.

Trinity College Dublin *Research Intern* — **Dublin, Ireland | Remote**
↪ Advised by: Prof. Khurshid Ahmad — School of Computer Science and Statistics | Jan. 2021 – Aug. 2021

- 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 vector auto-regressive analysis.

Delhi Technological University *Undergraduate Researcher* — **Delhi, India**
↪ Advised by: Prof. Dinesh Kumar Vishwakarma — Biometric Research Laboratory | Jan. 2020 – Jun. 2021

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

IIT Delhi Technology and Business Incubation Unit *Research Intern* — **Delhi, India**
↪ Advised by: Dr. Sarita Ahlawat — Aerogram | Nov. 2020 – Jan. 2021

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

Publications

(W=Workshop, C=Conference)

[W.1] **Towards Optimizing OCR for Accessibility** [paper]
Peya Mowar, Tanuja Ganu, Saikat Guha
In AVA: Accessibility, Vision, and Autonomy Meet (CVPR 2022 Workshop)

[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 IEEE 55th Annual Conference on Information Sciences and Systems (CISS)

Industry Experience

Amazon Web Services *Software Development Engineer* — **Dublin, Ireland**
↪ ElastiCache and MemoryDB — Jan 2023 – Jun 2023

- Automated snoozing of auto-update cluster scaling campaigns for suspended customers to reduce ops load by **31%**.
- *Tech Stack:* Java, Python, DynamoDB, Redis and Git.

Morgan Stanley *Technology Analyst* — **Mumbai, India | Remote**
↪ Cohort of Technology Analyst Program 2021 — Aug 2021 – Oct 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* **Mumbai, India**
↪ Institutional Securities Technology May 2020 – Aug 2020

- Transformed and loaded securities data in proprietary databases with **60%** drop in latency and traceable lineage.
- *Tech Stack:* Java Spring, KAFKA, MongoDB and Angular.

Relevant Projects

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

"News Consumption Behaviour of BVI Individuals in India" **Accessibility Lunch, Carnegie Mellon University**

"Towards Optimizing OCR for Accessibility" **EMPOWER 2022, IIT Madras Research Park**

"Democratizing Printed Content" **TEM Reading Group, Microsoft Research India**

Awards and Achievements

Won the Microsoft Global Hackathon 2022 Award in the 'Hack for Next Billion Users' track. **2022**

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

Graduate Courses:
Computer Vision, Mathematical Fundamentals for Robotics

Selected Undergraduate Courses:
Machine Learning, Artificial Intelligence, Algorithms, Data Structures, Computer Networks, Database Management, Operating Systems, Object Oriented Programming, Technical Communication, Human-Centered Design (Coursera)

Languages and Frameworks:
C, C++, Python, Java, MATLAB, Git, PyTorch, TensorFlow, OpenCV, Scikit-Learn, NLTK, Keras

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.