Mansi Agarwal

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Education

Carnegie Mellon University — *Pittsburgh*
Masters of Science in Robotics, School of Computer Science — *2021-2023*
- GPA $4.17/4.00$
- Featured Coursework: Computer Vision (16-720B), Statistical Techniques in Robotics (16-831), Math Fundamentals for Robotics (16-811), Kinematics, Dynamic Systems and Control (16-711)

Delhi Technological University — *Delhi, India*
Bachelor of Technology in Computer Science and Engineering — *2016-2020*
- GPA $9.46/10.00$, Top 1% percentile
- Featured Coursework: Machine Learning, Artificial Intelligence, Natural Language Processing, Soft Computing

Research Experience

Carnegie Mellon University (CMU) — *Pittsburgh*
***Graduate Research Assistant**, Advised by Prof. David Held* — *2021-Present*
- Working on robotic perception and manipulation as a member of RPAD lab.
- Teaching robots how to fold clothes without providing subgoals.

***Remote Research Intern**, Advised by Prof. Jack Mostow* — *2020-2021*
- Developed a disengagement predictor using visual cues in RoboTutor, an Intelligent Tutoring System. (Publication)
- Identified two major types of disengagement and discussed ways to curb them in design time and runtime.

***Robotics Institute Summer Scholar**, Advised by Prof. Jack Mostow* — *2019-2020*
- Proposed a novel semi-supervised method for automating affect detection in RoboTutor via facial cues. (Publication)

MIDAS (Multimodal Digital Media Analysis Lab), IIIT Delhi — *India*
***Research Assistant**, Advised by Dr. Rajiv Ratn Shah* — *2020-2021*
- Led a team of 14 students to engineer a suspect retrieval database system for Delhi Police, India.
- Developed a novel system which can retrieve suspects based on informant's blurry visual memory. (Publication)

***Research Intern**, Advised by Dr. Rajiv Ratn Shah* — *2018-2020*
- Trained a novel multimodal damage identification & severity detection system using attention fusion. (Publication)
- Developed a novel emotion detector leveraging online community structure, user history and BERT text embeddings.
- Designed a speaker-independent multi-view system for speech reconstruction using silent videos. (Publication)

Indian Institute of Technology (IIT), Delhi — *India*
***Research Intern**, Advised by Dr. Chetan Arora* — *2018-2019*
- Developed a deep learning-based breast cancer detection model for scale-invariant detection of malignant masses.
- Supported by All India Institute of Medical Sciences (AIIMS), Delhi.

National University of Singapore — *Singapore*
***Academic Intern**, Mentored by Prof. Tan Wee Kek and Prof. Wei Wang* — *2018*
- Hands-on learning program in Data Analytics using Artificial Neural Networks.
- Developed a Sentiment Analyzer on a four-lakh reviews dataset.

Delhi Technological University — *India*
***Project Intern and Undergraduate Teaching Assistant**, Advised by Prof. Rajesh Rohilla* — *2018*
- Trained a Visual Question Answering model using hierarchical co-attention to fuse visual and linguistic modalities.
- TA Responsibilities included preparing assignments, grading, and holding office hours for students.

Publications

Early Prediction of Children's Task Completion in a Tablet Tutor using Visual Features — *2021*
Bikram Boote, **Mansi Agarwal***, Jack Mostow*
The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI'21): Student Abstract (Finalist Paper)
PDF

SeekSuspect : Retrieving Suspects from Criminal Datasets using Visual Memory *2021*
Aayush Jain, Meet Shah*, Suraj Pandey*,* ***Mansi Agarwal****, Rajiv Ratn Shah, Yifang Yin*
The Second ACM International Conference on Multimedia in Asia (ACMM'21): Demo Papers
PDF

Crisis-DIAS: Towards Multimodal Damage Analysis - Deployment, Challenges, and Assessment *2020*
Mansi Agarwal*, Maitree Leekha*, Ramit Sawhney, Rajiv Ratn Shah*
The Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI'20): AI for Social Impact
DOI · PDF

Semi-supervised Learning to Perceive Children's Affective States in a Tablet Tutor *2020*
Mansi Agarwal*, Jack Mostow*
The Tenth Symposium on Educational Advances in Artificial Intelligence (AAAI - EAAI'20)
DOI · PDF

MEMIS: Multimodal Emergency Management Information System *2020*
Mansi Agarwal*, Maitree Leekha*, Ramit Sawhney, Rajiv Ratn Shah, Rajesh Yadav, Dinesh Vishwakarma*
The Forty Second European Conference on Information Retrieval (ECIR'20)
DOI · PDF

Hush-Hush Speak: Speech Reconstruction Using Silent Videos *2019*
Shashwat Uttam, Yaman Kumar*, Dhruva Sahrawat*,* ***Mansi Agarwal****, Rajiv Ratn Shah, Debanjan Mahata*
The Twentieth Annual Conference of the International Speech Communication Association (InterSpeech'19)
DOI · PDF

Video Summarization Using Global Attention With Memory Network and LSTM *2019*
Dhruva Sahrawat, Mohit Agarwal*, Sanchit Sinha*, Aditya Adhikary*,* ***Mansi Agarwal****, Rajiv Ratn Shah*
The Fifth IEEE International Conference on Multimedia Big Data (BigMM'19)
DOI · PDF

∗ indicates equal contribution.

Honors & Achievements

2021	**Finalist Student Abstract Paper (AAAI'21)**, Top 20 submission out of 500 submissions	*Online*
2021	**Paper Reviewer**, AAAI'21: Main Track	*Online*
2020	**Top 1% percentile**, Computer Science Department, Delhi Technological University	*India*
2020	**Microsoft Research Travel Grant**, for attending and presenting research at AAAI'20	*India*
2020	**ECIR Student Grant**, for attending and presenting work at ECIR'20	*Portugal*
2019	**S.N. Bose Scholarship**, 2.5% acceptance rate, awarded by the Govt. of India	*India*
2019	**Robotics Institute Summer Scholar, CMU**, worldwide acceptance rate: 3%	*U.S.A*
2016	**Gold Medalist**, for excellent academics throughout schooling	*India*

Extracurricular Activities

CLIMB, DTU *Delhi India*
Student Mentor, Technical Advisor *2019 - Present*
- An initiative to create an eco-system for passionate women in technology who inspire each other to excel.
- Held webinars to promote and inculcate research culture into students.
- Supported several sophomore and junior students in their research and academic goals.

Prayogshala in collaboration with Teach for India (TFI) *Delhi, India*
Student Volunteer *2016*
- Taught the practical aspects of Science to fifty female, underprivileged students of class 6.
- Designed curriculum using electric, magnetic and hydraulic kits for hands-on learning.

Technical Skills

Programming	C, C++, Python
Frameworks/Libraries	PyTorch, Tensorflow, CUDA, Keras, OpenCV, Scikit-learn
Other	CSS, HTML, Linux, LaTeX, MS Office programs