

Manasi Malik

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EDUCATION

JAN 2021 – PRESENT	Johns Hopkins University (JHU) Ph.D. Student DEPARTMENT OF COGNITIVE SCIENCE	
2015 – 2019	Indraprastha Institute of Information Technology, Delhi (IIIT Delhi) Bachelor of Technology (Honors) Major: ELECTRONICS & COMMUNICATION ENGINEERING Minor: COMPUTATIONAL BIOLOGY	GPA: 8.61 / 10
2013 – 2015	Modern School, Barakhamba Road, Delhi (MSBK) CBSE BOARD	PERCENTAGE: 95.6%
2001 – 2013	Apeejay School Noida (APJN) CBSE BOARD	GPA: 10 / 10

INDUSTRY EXPERIENCE

AUG'19 – DEC'20	Researcher at TCS Research and Innovation I worked on developing deep-learning methods to improve effectiveness of advertising using user behaviour data.
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PROJECTS

COMPLEX NETWORKS ANALYSIS AND COMPUTATIONAL MODELING

JAN'21 – PRESENT	Social Inference from Relational Visual Information <i>Advisor: Dr. Leyla Isik</i> I am working on modeling third-person social interaction judgments by humans from visual stimuli. We hypothesize that relational representations of visual stimuli lead to more human-like social judgements.
MAY'18 – MAY'19	Network Analysis of Neuro-Cognitive Processes: Studying McGurk Effect using EEG Data <i>Advisors: Dr. Arpan Banerjee, Dr. Ganesh Bagler, Dr. Dipanjan Roy</i> Investigated multi-sensory perception involving auditory and visual cues using McGurk effect. My focus in this research was to understand the network properties of the brain using EEG data obtained from multiple subjects. [LINK]
JAN'18 – NOV'18	Network Analysis of Food-Disease Associations <i>Advisor: Dr. Ganesh Bagler</i> The focus of this research was to use clustering analysis to infer how different food and disease categories relate to each other. We created signed bipartite graphs using mined food-disease associations data and found clusters using Bi-Louvain algorithm. [LINK]
AUG'17 – NOV'17	Controllability Analysis in Brain Networks <i>Advisor: Dr. Ganesh Bagler</i> Aimed to find different driver regions in a Mouse Brain network which when controlled, can affect the behavior of the animal. Used Network Theory.
JAN'18 – APR'18	Dynamic Analysis For Neuropathic Excitability <i>Advisor: Dr. Sriram K</i> Implemented the paper "Identification of Molecular Pathologies Sufficient to Cause Neuropathic Excitability In Primary Somatosensory Afferents Using Dynamical Systems" by Rho, Prescott 2012, using MATLAB.

IMAGE AND SIGNAL PROCESSING

JAN'19 – APR'19	Face and Kinship Verification in the Wild <i>Advisor: Dr. A V Subramanyam</i> The goal of the project was to use Large-margin multi-metric learning (LM3L) method to decide whether there is a kinship relation between two individuals via their face images.
AUG'17 – NOV'17	PhotoFix : Fixing Photos Using Semantically Similar Images <i>Advisor: Dr. A V Subramanyam</i> The goal of this project was to fix patches and holes in pictures - or imperfectly taken photos - by replacing these with information from other semantically similar pictures.
AUG'16 – NOV'16	Emotion Detection through EEG signals <i>Advisor: Dr. Anubha Gupta</i> Used electroencephalogram (EEG) data for emotion recognition in human beings. Trained a Support Vector Machine (SVM) classifier where features were frequency data from Fourier Transform and Wavelet Transform of the signals

MACHINE LEARNING

- JAN'18 – APR'18 **RL for Grocery Shopping Solutions**
Advisor: Dr. Sanjit Kaul
Used reinforcement learning techniques to make grocery shopping easier. Modeled variables like price, availability, travelling cost for multiple shops.
- AUG'17 – NOV'17 **RLdrive: Reinforcement Learning for Better Driving Decisions**
Advisor: Dr. Saket Anand
Used RL techniques to make agent reach from start to goal position while minimizing costs. The environment created had randomly placed obstacles. We aimed to explore if spatial and temporal information from different vehicles can help make better decisions.

PUBLICATIONS

- M. Malik, G. Gupta, L. Vig, and G. Shroff, [BCQ4DCA: Budget Constrained Deep Q-Network for Dynamic Campaign Allocation in Computational Advertising](#), IEEE International Joint Conference on Neural Networks, 2021 (IJCNN '21).
- Y. Rauthan, V. Singh, R. Agrawal, S. Kadlay, N. Pedanekar, S. Karande, M. Malik, and I. Tariang, [Avoid Crowding in the Battlefield: Semantic Placement of Social Messages in Entertainment Programs](#), International Workshop on AI for Smart TV Content Production, Access and Delivery (AI4TV '20)

SKILLS

PROGRAMMING SKILLS	- Proficiency in MATLAB, Python - Exposure to C/C++, SQL, HTML, Verilog HDL, AVR Programming - Competitive programming course (CodeChef challenges, Summer 2016)
TOOLS AND TECHNOLOGIES	- Brain Connectivity Toolbox, EEGLAB toolbox, BioPython toolbox - NetworkX, Scikit-learn, Pajek, Cytoscape, OpenCV
ONLINE COURSES	- NENGO, LTSpice, Xilinx ISE, Linux, Git, Docker, Sublime Text - Computational Neuroscience, University of Washington (Coursera) - The Brain and Space, Duke University (Coursera) - An Introduction to Interactive Programming in Python, Rice University (Coursera)
WORKSHOPS	- Summer School on Statistical and Machine Learning Approaches in Neuroimaging and Cognitive Neuroscience, IIIT Hyderabad (SSN12017)

AWARDS AND ACHIEVEMENTS

- Awarded the **All Rounder Award, ECE department** 2019 graduating batch
- Top ranks in multiple district/zonal school level soccer tournaments (8th -11th standards).
- Inter College Tournament Medals in: **Football** (IIT Roorkee '19 : **Gold**, IIT Kanpur '18: **Silver**); **Basketball** (IIITM Gwalior '16: **Silver**)
- **Won** Mini-Picturesque 1.0, the intra IIITD Photography contest
- Photographs **published in College Calendars** of 2017, 2018 and 2019
- **Qualified for DST INSPIRE Scholarship** - 2015 (Through Admission to Indian Institute of Science Education and Research Mohali)

POSITIONS OF RESPONSIBILITY

- Curator for [TEDxIIITD '18](#)
- **Student Council** Representative for ECE batch in 2017-18
- **Sports Council** Representative for Women Sports in 2016-17
- **Co-founded** the IIITD Girls' Football Team
- **Teaching Assistant (TA)** for two courses in undergrad: Introduction to Poetry (Monsoon 2016) and Indian Poetry Through The Ages (Winter 2019)
- **Co-ordinator**, Bio-Bytes Club (Jan'17 - May'17)
- Photography Cell Member, **Media Panel**: 2017-19
- **Vice Captain**, Girls' Basketball team: 2016-17
- **Teaching Assistant (TA)** for Computational Social Cognition (Fall 2021) at JHU

COMMUNITY WORK

- **Volunteer for One Nation Netball Cup: 2016 and 2017 (Summers)**
[One Nation Netball Cup](#) aims at giving participants a wider cultural exposure and sensitizing them about gender disparity through sports. Underprivileged girls and boys from all over the country participate.