

Manasi Malik

(667) 910-2511 | mmalik16@jhu.edu | manasi15146@iiitd.ac.in | [LinkedIn](#)

EDUCATION

Johns Hopkins University (JHU)

Ph.D. in Cognitive Science

COMPUTATIONAL COGNITIVE SCIENCE TRACK

PI: Dr. Leyla Isik

JAN'21 – PRESENT

Indraprastha Institute of Information Technology, Delhi (IIIT Delhi)

Bachelor of Technology (Honors)

Major: ELECTRONICS & COMMUNICATION ENGINEERING

Minor: COMPUTATIONAL BIOLOGY

APR'15 – MAY'19

INDUSTRY EXPERIENCE

Researcher at TCS Research and Innovation

I worked on developing deep-learning methods to improve effectiveness of advertising using user behaviour data.

AUG'19 – DEC'20

PUBLICATIONS & SELECTED PRESENTATIONS

Publications **Manasi Malik**, and Leyla Isik. [Relational Visual Information Explains Human Social Inference: A Graph Neural Network Model for Social Interaction Recognition](#). PsyArXiv, 3 Nov. 2022. (under review)

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).

Yashaswi Rauthan, Vatsala Singh, Rishabh Agrawal, Satej Kadlay, Niranjana Pedanekar, Shirish Karande, **Manasi Malik**, and Iphi 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)

Manasi Malik, Ganesh Bagler, and Arpan Banerjee. [Network analysis of neuro-cognitive processes: studying mcgurk effect using EEG data](#), IIITD, 2019.

Talks **Manasi Malik**, Leyla Isik [Social Inference from Relational Visual Information](#), Vision Sciences Society (VSS '22), Florida, USA

Manasi Malik, Leyla Isik, [Social Inference from Relational Visual Information](#), MIT Computational Cognitive Science group (virtual, 2022)

Manasi Malik, Leyla Isik, [Social Inference from Relational Visual Information](#), Brown Bag Talk, JHU Cognitive Science (2022)

Posters **Manasi Malik**, Leyla Isik, [Social Inference from Relational Visual Information: An Investigation with Graph Neural Network Models](#), Conference on Cognitive Computational Neuroscience (CCN'22), San Francisco, USA (poster)

PROJECTS

COMPLEX NETWORKS ANALYSIS AND COMPUTATIONAL MODELING

Social Inference from Relational Visual Information

JAN'21 – PRESENT

Advisor: [Dr. Leyla Isik](#)

I am working on modeling how humans make social interaction judgments from visual stimuli in third-person scenarios. We find that relational representations of visual stimuli lead to more human-like social judgements.

Network Analysis of Neuro-Cognitive Processes: Studying McGurk Effect using EEG Data MAY'18 – MAY'19

Advisors: Dr. Arpan Banerjee, Dr. Ganesh Bagler, Dr. Dipanjan Roy

We investigated the underlying mechanism of multi-sensory perception, using an audio-visual illusion called the McGurk Effect. Using EEG and behaviour data from multiple subjects, we applied graph theory concepts to understand differences in brain network organizations during different percepts. [\[LINK\]](#)

Network Analysis of Food-Disease Associations JAN'18 – NOV'18

Advisor: Dr. Ganesh Bagler

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. [\[LINK\]](#)

Controllability Analysis in Brain Networks AUG'17 – NOV'17

Advisor: Dr. Ganesh Bagler

We studied the controllability of a Mouse Brain network, and find different driver regions when controlled, can affect the behavior of the animal.

Dynamic Analysis For Neuropathic Excitability JAN'18 – APR'18

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

Face and Kinship Verification in the Wild JAN'19 – APR'19

Advisor: Dr. A V Subramanyam

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.

PhotoFix : Fixing Photos Using Semantically Similar Images AUG'17 – NOV'17

Advisor: Dr. A V Subramanyam

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.

Emotion Detection through EEG signals AUG'16 – NOV'16

Advisor: Dr. Anubha Gupta

We used electroencephalogram (EEG) data for emotion recognition in human beings. We trained a Support Vector Machine (SVM) classifier where features were frequency data from Fourier Transform and Wavelet Transform of the signals

MACHINE LEARNING

RL for Grocery Shopping Solutions JAN'18 – APR'18

Advisor: Dr. Sanjit Kaul

We used reinforcement learning techniques to make grocery shopping easier. Modeled variables like price, availability, travelling cost for multiple shops.

RLdrive: Reinforcement Learning for Better Driving Decisions AUG'17 – NOV'17

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.

TEACHING

Teaching Assistant, Introduction to Computational Cognitive Science (JHU)	Spring 2023
Teaching Assistant, Introduction to Cognitive Neuropsychology (JHU)	Fall 2022
Teaching Assistant, Visual Cognition (JHU)	Spring 2022
Teaching Assistant, Computational Social Cognition (JHU)	Fall 2021
Teaching Assistant, Indian Poetry Through The Ages (IIITD)	Winter 2019
Teaching Assistant, Introduction to Poetry (IIITD)	Monsoon 2016

SERVICE

- Active member of the [Diversity and Representation Committee](#), Dept. of Cognitive Science, JHU
- Curator for [TEDxIIITD '18](#)
- **Student Council** Representative for ECE batch in 2017-18
- **Co-ordinator**, Bio-Bytes (Computational Biology Club) (Jan'17 - May'17)

AWARDS AND ACHIEVEMENTS

- **All Rounder Award, ECE department** 2019 graduating batch
- **Qualified for DST INSPIRE Scholarship** - 2015 (Through Admission to Indian Institute of Science Education and Research Mohali)
- 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**)

SKILLS

PROGRAMMING SKILLS	<ul style="list-style-type: none">- Proficiency in MATLAB, Python- Exposure to C/C++, SQL, HTML, Verilog HDL, AVR Programming- Competitive programming course (CodeChef challenges, Summer 2016)
TOOLS AND TECHNOLOGIES	<ul style="list-style-type: none">- Tensorflow, PyTorch, Brain Connectivity Toolbox, EEGLAB toolbox, BioPython toolbox- NetworkX, Scikit-learn, Pajek, Cytoscape, OpenCV- NENGO, LTSpice, Xilinx ISE, Linux, Git, Docker, Sublime Text
ONLINE COURSES	<ul style="list-style-type: none">- Computational Neuroscience, University of Washington (Coursera)- The Brain and Space, Duke University (Coursera)- An Introduction to Interactive Programming in Python, Rice University (Coursera)
WORKSHOPS	<ul style="list-style-type: none">- Summer School on Statistical and Machine Learning Approaches in Neuroimaging and Cognitive Neuroscience, IIIT Hyderabad (SSNI2017)