

HARSHIT CHAUHAN

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Education

Maharaja Surajmal Institute of Technology, GGSIPU

Delhi

B.Tech , Information Technology

Aug. 2016 – May 2020

- 8.1/10.0

Experience

Graduate Researcher

Jan 2021 – Present

Monash University, Australia | IIIT-D

Remote

- Advisors: Dr.Abhinav Dhall, Dr.Jainendra Shukla
- This is a collaborative project between the aforementioned professors.
- Working on a novel set of neuro-marketing research problems in Indian context.
- Computer Vision , Statistical modelling , Affective computing.

Research Associate

Oct 2020 – Present

HMI Lab

IIIT-Delhi

- Advisor: Dr. Jainendra Shukla , Dr. Sonia Baloni Ray
- Working on an array of research problems related to HCI, Computer vision and role of physiological signals.
- Setting up synchronization and communication protocol for data acquisition.

Research Intern

Nov 2019 – June 2020

HMI Lab

IIIT-Delhi

- Worked at Human-Machine-Interaction Lab
- Eye Tracking and Analysis using Statistical Machine Learning models.

Teaching Assistant

June 2019 – Aug 2019

Coding Blocks

Delhi

- Teaching Assistant for the Machine learning with python course at Coding Blocks, Dwarka.

Research : Projects

Tencent ACMMM Video Understanding Challenge 2021

Advisors : Dr. Jainendra Shukla, Dr. Abhinav Dhall

- * Secured 42/294 rank reaching into the semi-final stage with a GAP score of 0.78.
- * Pytorch/Pytorch lightning based multi-modal multi-label prediction model.
- * Created a Video pipeline from scratch for C3D + NeXtVLAD and LGSS+Xception+ NeXtVLAD in Pytorch.
- * Text pipeline :Finetuned BERT model, Audio pipeline: VGGish + NeXTVLAD, Image pipeline : Resnet V2 50
- * Experimented with various fusion based strategies from simple MLP to cross-attention.

Multi-modal Analysis of attention in young ADHD pupils & their typically growing counter-parts.

Advisors : Dr. Jainendra Shukla , Mr. Vishal Saxena

- * The purpose of this study is to predict the attention levels of above mentioned groups.
- * Developed both online and offline data collection protocols. [Link](#)
- * Multi-modal attention prediction model using FAUs, Gaze maps, HRV. [Project Website](#)

Neuro-Marketing Analysis of Video Advertisements among people of Indian Ethnicity.

Advisors : Dr. Jainendra Shukla, Dr. Abhinav Dhall

- * Aim is to perform quantitative analysis and multi-modal analysis of advertisements and consumer behaviour in Indian context using physiological signals from webcam.
- * Created an online data collection protocol using JsPsych, Node.js and webgazer.js [Link]

Studying the role of eye and facial feature processing associated with Uncanny Valley effect

Members : Ojasva Saxena, Dr. Sonia Baloni Ray

- * The purpose of this study is to find correlations between gaze movements, facial features and uncanny valley effect
- * Assisted the project by setting up of the data collection protocol.

Publications

Short Paper(Accepted)

2020**Harshit Chauhan**, Anmol Prasad, Jainendra Shukla Engagement Analysis of ADHD students using visual cues from eye-tracker In *ACM ICMI 2020* [Paper] [Video]

Relevant Projects

Webcam Based Eye tracker

2020

- * A webcam based eye tracker using open-source eye region localization model GazeML, regression model for mapping on-screen gaze position to eye visual angles & Kalman filtering for smooth transition.

Attention PLease!

2020

- * Locally hosted video conferencing application with python's zmq that predicts user's attention using lbtoc facial feature and gaze fixation features using a Conv-LSTM model.

Opencv on live stream

2020

- * A Flutter plugin which runs opencv on live stream by calling the native android code.

iSeeYou

2019

- * the complete eye tracking analysis kit using GazeML , opencv and pygame. This eye tracker performs a 9 point calibration and uses kalman filtering for smoothing along with that it allows the user to visualize the fixation plots and graphs at the end.

Dr.BonnAI

2019

- * In this project we have attempted to replicate music therapy based neurological sessions with the help of opencv ,pygame and xgboost model trained on a custom dataset. The model changes the background music on the basis of certain eye movements.

YogAI

2019

- * A Posenet based Yoga Instructor manages and suggests workout routines accordingly.

Awards & Recognitions

RIISE <i>Poster Presentation</i> * Presented poster for Multi-modal analysis of ADHD using physiological signals.	2020 IIIT-D
MedHacks <i>Shortlisted</i>	2019 John Hopkins University,Baltimore
SIG Mentor <i>IEEE-MSIT</i> * Machine learning with python course at IEEE-MSIT.	2019 MSIT,Delhi
Technical Project Exhibition <i>Runner-up</i> * Secured 2nd position at the project exhibition amongst 14 teams.	2019 MSIT,Delhi
MSIT Hackathon <i>Organizer Mentor</i> * Organised a 12 hours long hackathon at MSIT, Delhi with teams participating from all the premier technical institutes over Delhi.	2019 MSIT,Delhi
HackDTU 3.0 <i>Runner-up</i> * Secured 2nd position out of 283 teams at DTU,Delhi. * Project Presented: Dr.BonnAI.	2019 DTU,Delhi
HackOKPlease! <i>Runner-up</i> * Secured 2nd position out of 50 teams at NSUT,Delhi. * Project Presented: YogAI.	2018 NSUT, Delhi
CIC Hackathon <i>Special Mention</i> * Received a special mention from the judges and the mentors * Project Presented: DiabetAR : A smart app for monitoring and managing glucose levels and insulin dosage.	2018 CIC,Delhi

Skills

Languages: Python, C/C++, C#, SQL, JavaScript, HTML/CSS,
Framework & tools: Keras, PyTorch, Scikit-learn, Pandas, Numpy, Matplotlib, aiortc, Psychopy, Opencv, LSL
Familiar: Flask, Android Studio, Arduino Processing, Flutter, Django
Developer Tools: Jupyter Notebooks, Git, Google Cloud Platform, VS Code
Blog: [Medium](#)

Mentors

Dr. Jainendra Shukla: IIIT-D
Dr. Abhinav Dhall: Monash University, Australia
Dr. Adeel S. Hashmi: MSIT,Delhi
Dr. Sonia Baloni Ray: IIIT-D