

# 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

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## 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.

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## Research : Projects

**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.
- \* Data collection over a large sample population using a multi-modal devised protocol.

**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 perform the quantitative multi-modal analysis of different levels of attention in young developing ADHD and typically growing students with the help of physiological data.
- \* Data collection over a large sample population using a multi-modal devised protocol consisting of set of clinically validated tests.
- \* Physiological devices used : EEG, Eye tracker and GSR(Galvanic skin response)

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## 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.

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### 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]

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### 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 libtop 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.

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## Awards & Recognitions

<b>RIISE</b> <i>Poster Presentation</i> * Presented poster for Multi-modal analysis of ADHD using physiological signals.	2020 IIIT-D
<b>MedHacks</b> <i>Shortlisted</i>	2019 John Hopkins University,Baltimore
<b>SIG Mentor</b> <i>IEEE-MSIT</i> * Machine learning with python course at IEEE-MSIT.	2019 MSIT,Delhi
<b>Technical Project Exhibition</b> <i>Runner-up</i> * Secured 2nd position at the project exhibition amongst 14 teams.	2019 MSIT,Delhi
<b>MSIT Hackathon</b> <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
<b>HackDTU 3.0</b> <i>Runner-up</i> * Secured 2nd position out of 283 teams at DTU,Delhi. * Project Presented: Dr.BonnAI.	2019 DTU,Delhi
<b>HackOKPlease!</b> <i>Runner-up</i> * Secured 2nd position out of 50 teams at NSUT,Delhi. * Project Presented: YogAI.	2018 NSUT, Delhi
<b>CIC Hackathon</b> <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

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## 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](#)

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## Mentors

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