

## MADHAV AGARWAL

**OBJECTIVE** To work with a dynamic organization for developing socially relevant products using Computer Vision and Artificial Intelligence.

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**EDUCATION**

**MS by Research**, Computer Science and Engineering, 2020 - Present  
International Institute of Information Technology, Hyderabad  
CGPA: **9.17**

**Bachelor of Technology (Hons.)**, Information Technology, 2014-2018  
Dr. A.P.J. Abdul Kalam Technical University, Lucknow  
Ajay Kumar Garg Engineering College, Ghaziabad  
Percentage: **76.00%**

**All India Senior School Certificate Examination**, 2013  
R.R.K. Senior Secondary School, Chandausi (CBSE)  
Percentage: **88.00%**

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**WORK HISTORY**

**Research Fellow at International Institute of Information Technology, Hyderabad**  
Computer Vision | Deep Learning | Face Reenactment | Document Understanding  
Nov 2019 – Present

**Machine Learning Consultant at GuiseAI**  
Computer Vision | Deep Learning | Model Optimization | Solution on Edge Devices  
Jan 2022 – June 2022

**Senior Data Scientist at CAW Studios**  
Computer Vision | Deep Learning | Document Understanding  
Dec 2019 – Sept 2020

**Data Scientist at Innefu Labs Pvt. Ltd.**  
Computer Vision | Deep Learning | Smart Security and Surveillance Solution  
Jul 2018 - Sept 2019

**Data Scientist at Tidyquant Pvt. Ltd.**  
Predictive analytics using machine learning  
Jan 2018 - April 2018

**Machine Learning Intern at HR Real Value**  
Prediction of house prices and valuation of real estate using Machine Learning models.  
June 2017- July 2017

**Data Analyst Intern at GoHelper**  
Mapping vendors with potential customers based on geographic and revenue models.  
May 2016 – July 2016

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**SKILLS**

**Programming Languages:** Python, C and C++

**Deep Learning Technologies:** CNN, RNN, LSTM, GAN, Transformers, NeRF

**Deep Learning Framework:** PyTorch, Keras, TensorFlow

**ML Libraries :** OpenCV, Numpy, Pandas, Scipy, Matplotlib, Numba and others

**Operating System :** Linux, Windows

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## Object Detection and Tracking

Trained various models to detect and track objects like Weapon, Person, Face, Helmet, Shoes, Safety Harness using our custom datasets in various different projects.

*Models Used:* Yolo, MobileNet, DeepSort, Kalman Tracker, IOU

## Pedestrian Attribute Recognition and Classification

Identify the attributes of person like age, gender, clothes etc. and use them for classification.

*Models Used :* NASNet, ResNet-50, Inception-v2

### INDUSTRIAL PROJECTS

## Documents and Invoice Understanding

Extract information from invoices, bank statements, receipts etc. using combination of NLP and Computer Vision based techniques

*Models Used:* BERT, LayoutLM, Tesseract

## Satellite Images

Detection and classification of ships, submarines using real time satellite images.

*Models Used :* R2CNN Faster-RCNN

## Smart Security and Surveillance Solution

Developed various modules such as: Trespassing Detection, Person Count, Abandon Objects, Group Formation, Heat-Map Generation etc.

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## Audio-Visual Face Reenactment

Winter Conference on Applications of Computer Vision (WACV), 2023.

*Authors:* Madhav Agarwal, Rudrabha Mukhopadhyay, Vinay Namboodiri & C. V. Jawahar.

## Compressing Video Calls using Synthetic Talking Heads

33rd British Machine Vision Conference (BMVC), 2022.

*Authors:* Madhav Agarwal, Anchit Gupta, Rudrabha Mukhopadhyay, Vinay Namboodiri & C. V. Jawahar.

### RESEARCH

## CDeC-Net: Composite Deformable Cascade Network for Table Detection in Document Images

25<sup>th</sup> International Conference on Pattern Recognition (ICPR), 2020. (Oral)

*Authors:* Madhav Agarwal, Ajoy Mondal & C. V. Jawahar

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### ACHIEVEMENTS AND EXTRACURRICULAR ACTIVITIES

- Served as a **Reviewer** for 26<sup>th</sup> International Conference on Pattern Recognition (ICPR).
  - Received **Graduate Scholarship** from IIIT-Hyderabad to cover full tuition fee of MS degree.
  - Member and **Student Head Coordinator** (2017-18) of **Big Data Centre of Excellence**, R&D Lab of AKGEC, for three years (2015-2018).
  - Won **1<sup>st</sup> Prize** in **Big War** event of **BigDataThon'17** (24 Hours project making competition on Big Data technologies) organized by ABESIT, Ghaziabad (April 2017).
  - Successfully organized 12 Hrs. **Workshops** on **"Machine Learning and Neural Networks"** (Feb 2018) and **"Data Science"** (March 2017) as a **Mentor**.
  - Coordinator in **6<sup>th</sup> Summer School of AI** (2022) organized by IIIT-Hyderabad.
  - NPTEL certified in Python with an **ELITE** certificate.
  - Secure **800/800** in National Programming Aptitude Test 2017 by NPTEL.
  - Part of College Band, Media Team and Mental Health Group.
  - Part of Tech Fest, Cultural Fest and Blood Donation Camp organizing teams.
  - School **Topper** in **Computer Science**, batch of 2013.
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