

MADHAV AGARWAL

OBJECTIVE

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

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%**

All India Secondary School Examination, 2011
R.R.K. Senior Secondary School, Chandausi (CBSE)
CGPA: **9.6**

WORK HISTORY

Research Fellow at International Institute of Information Technology, Hyderabad
Computer Vision | Deep Learning
Nov 2019 - Present

Senior Data Scientist at CAW Studios, Hyderabad
Computer Vision | Deep Learning
Dec 2019 – Sept 2020

Data Scientist at Innefu Labs Pvt. Ltd., Delhi
Computer Vision | Deep Learning | Security and Surveillance through video analytics
Jul 2018 - Sept 2019

Data Scientist at Tidyquant Pvt. Ltd., Noida
Predictive analytics using machine learning for a UK based company.
Jan 2018 - April 2018

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

Data Analyst Intern at GoHelper, Noida
Create network to find potential customers and map them with the vendors in an area.
May 2016 – July 2016

TRAINING AND MOOC

Deep Learning Specialization | DeepLearning.AI TensorFlow Developer
Coursera
Big Data & Hadoop Course (Jan 2016 – April 2016)
Epitome Information Technology Solutions Pvt. Ltd., New Delhi

SKILLS

Programming Languages: Python, C, C++ & Core Java

Data Science Technologies: Deep Learning, Machine Learning & Neural Networks

Big Data Technology: Hadoop, Apache Spark, Apache Pig, Apache Hive & Map-Reduce

Deep Learning Framework: Keras, TensorFlow, PyTorch

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

Operating System : Linux, Windows

Object Detection

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

Models Used: Yolo, MobileNet

Object Tracking in live video

Track the movement of persons and other objects using various tracking algorithms.

Algorithms Used : DeepSort, Kalman Tracker, IOU, KIOUT

Object Classification

Classification of persons based on their dress, classification of images into several categories.

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

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

INDUSTRIAL PROJECTS

Satellite Images

Detection and classification of ships using satellite images for one of the national intelligence agency.

Models Used : R2CNN Faster-RCNN

Pedestrian Attribute Recognition

Identify the attributes of person like age, gender, clothes etc. by training a model on RAP and PA100K dataset

Models Used : Resnet50

Video Analytic modules

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

Dataset Tagging

Tagged our own datasets for some special use-cases

Tools Used : YoloMark, LabelImg

ACADEMIC PROJECTS

CDeC-Net for Table Detection in Document Images

A deep learning based network for detecting tables in document images. It uses combination of CBN, Deformable Convolution and Cascade Mask RCNN(with FPN).

Technology Used: PyTorch

Digital Handwriting: Transform one handwriting into another

(2017-18) (Final Year Project)

A model that can read one handwriting and transform it into another pre-trained handwriting of a person using Neural Networks.

Technology Used: Deep Neural Network

Automated Attendance System (2017)

Fully automated attendance system that can detect faces and recognize them using live CCTV camera feed.

Technology Used : Python, OpenCV, Neural Network, Machine Learning

House Price Prediction Model (2017)

Analyze 10 years of data of Delhi-NCR and predict the price of houses and other properties in accordance with the location, with an accuracy of 90% in a price range of 15%.

Technology Used : Machine Learning, Python

Wikipedia Search Engine (2016)

Successfully built a TF-IDF (Term Frequency & Inverse Document Frequency) based search algorithm for searching a subset of Wikipedia data on Hadoop Cluster of 3 Nodes hosted on AWS, having web UI using Django

Technology Used : Apache Spark v2.1.0, Python, Django

RESEARCH PAPER

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

25th International Conference on Pattern Recognition (ICPR), 2020.

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

ACHIEVEMENTS AND EXTRACURRICULAR ACTIVITIES

- Served as a **Reviewer** for 26th International Conference on Pattern Recognition (ICPR).
 - Member of **Big Data Centre of Excellence**, R&D Lab of AKGEC, for three years (2015-2018).
 - **Student Head Coordinator** (2017-18) for dedicated work and contribution in several projects at lab.
 - Won **1st 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**.
 - Published **Research Papers** on "**Machine Learning in Big Data Analytics**" in IIIR International Journal (December 2016) and "**Blue Brain**" in InfoBytes.
 - Took part in **World's Biggest Hackathon**, Smart India Hackathon (Software Edition) at Nagpur and Rajasthan Digifest at Jaipur.
 - 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.
 - Part of organizing teams of Tech Fest, Cultural Fest and Blood Donation Camp.
 - School **Topper** in **Computer Science**, batch of 2013.
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