

# CHIRAYU MITTAL

ACADEMIC PROFILE			
Degree/Certificate	Institution	Percentage/CGPA	Year
B-Tech	Ceramic Engineering IIT (BHU), Varanasi	7.77	2024
CBSE (XII)	Delhi Public School, Faridabad	84.40	2019
CBSE (X)	Delhi Public School, Faridabad	93.10	2017
SKILLS			
R, Python, Consulting, Probability, Statistics, JavaScript, React, Django			
INTERNSHIP/TRAINING			
Market Analyst - Axxela		20/05/23 - 15/07/23	
Interest rate market fundamentals, Derivatives market prediction using mathematical modelling			
<ul style="list-style-type: none"><li>Researched SOFR 3-Months contracts, analyzed datasets, generated strategies achieving <b>75% win ratio</b></li><li>Researched <b>Black Scholes model</b> for derivatives, built related <b>mathematical model</b> from scratch to predict real time data, generating <b>90% leading predictions</b>. Compared the result with standard regression predictions</li><li><b>Preprocessed</b> data based on market trends, time frames and strategies, <b>automated signals and execution</b></li></ul>			
PROJECTS			
NLP Based Machine Translation with Attention Mechanism			
<ul style="list-style-type: none"><li>-Developed a <b>neural machine translation (NMT)</b> model for English to Spanish translation achieving <b>72.7% accuracy</b></li><li>- Fine-tuned the NMT model using techniques such as <b>beam search</b> to optimize translation output</li><li>- Further Implemented an <b>attention mechanism</b> achieving <b>82.05%</b> accuracy and capture context-aware words</li></ul>			
Chest X-Ray Diagnosis			
<ul style="list-style-type: none"><li>Implemented <b>DenseNet</b> to train on 865 training image dataset to identify diseases like Edema, Effusion, etc</li><li>Solved for class imbalance problem by using <b>cross entropy loss function</b> to make sure results are not biased</li><li>Used <b>AUC curve</b> for evaluation. Achieved <b>0.896 score</b> on cardiomegaly. Used gradCam for visualizations</li></ul>			
Canine Classifier: Deep Learning for Precise Dog Breed Recognition			
<ul style="list-style-type: none"><li>Designed and implemented a <b>convolutional neural network (CNN)</b> for the task of classifying <b>120</b> distinct dog breeds</li><li>Leveraged transfer learning by fine-tuning pretrained models (<b>ResNet, Inception</b>) on the ImageNet dataset</li><li>Experimented with custom CNN architectures, optimizing <b>layer depths, kernel sizes, and activation functions</b></li></ul>			
SEM Particle size measurement			(Ongoing)
Under Dr. Kundan Kumar			
<ul style="list-style-type: none"><li>Researched <b>SEM images</b> and particles, implemented <b>Hough transform</b> to find particle boundary , radius</li><li>Studied <b>U-Net</b> architecture for segmenting the images. Used <b>Skimage Library</b> to preprocess images</li></ul>			
Twitter Sentiment Analysis			
<ul style="list-style-type: none"><li>Trained a <b>Support Vector Machine</b> on <b>16,000 Tweets</b> on an Indian Politics to classify them into 3 classes</li><li><b>Tokenized and lemmatized</b> the words and then used WordNet vectorizer to convert text to vectors</li><li>Made predictions on <b>1000+ Tweets</b> with an <b>accuracy of 83.5%</b>, further fine tuned hyperparameters.</li></ul>			
POSITION OF RESPONSIBILITY			
Director - HULT Prize IIT (BHU)			1 Year
<ul style="list-style-type: none"><li>Achieved a <b>2X</b> increase in participation from last year in HULT Prize regionals.</li><li>Conducted first ever KeyNote session and Training sessions aimed at fostering on-ground growth for startups.</li></ul>			
HONOURS AND ACHIEVEMENTS			
Inter-IIT Bronze    Silicon Labs			1 month
● Inter-IIT project – IoT based solution in Fem-tech sector			
<ul style="list-style-type: none"><li>Won the <b>Bronze Medal</b> at Inter-IIT Tech Meet 10.0, 2022 amongst <b>23 participating IITs</b></li><li>Innovated a Tech-led, IoT based solution for monitoring women’s health, specially in rural population</li><li>Analysed the <b>stakeholders</b> and devised an <b>end-to-end business plan</b> around the suggested innovation</li></ul>			

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