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OBJECTIVE

To pursue a Master's degree in Data Science to outline the technical vision for a diverse altruistic community in-order to enable contextual learning and make breakthroughs in clinical artificial intelligence, especially in proactive mental-health assistance.

EDUCATION

Bachelor of Technology in Mining Engineering

July 2012 – July 2016

Indian Institute of Technology (Banaras Hindu University) Varanasi

CGPA: 8.82 / 10

Relevant Courses : Mathematics I & II (Sequences, Multi-variate Calculus, Algebra, Vectors), Numerical Methods (Integrals, Statistics), Mine Safety Engineering (Random Variables, Probability), Computer Programming with C (OOPs), Computer applications in Mining (Software Design-Development, Simulation, Predictive Modelling), Operations Research (Linear/Dynamic Programming, Optimization)

WORK EXPERIENCE

5.10 Years

Morgan Stanley, Wealth Management, AI-NLP Division

Bangalore, India

Data Scientist (Manager)

July 20, 2020 – Present

- **Conversational Q&A Chatbot** – Integrated AI & NLP into a search-based bot to predict user intent and financial-entity using deep learning classifiers eliminating manual search-index annotation, cutting costs from 135 person-hours (9 resources x 15 hr/week) to 45.
- **Feedback Loop** – Leveraging hierarchical clustering with semantic similarity, developed a complete ML pipeline for improving bot performance using user feedback amplifying accuracy to 94% for the process and coverage by 35%+ gain.
- **Document AI** – Innovated an AI-platform for phrase extraction, document summarization, FAQ generation, and similar document recommendation using fine-tuned embeddings in a CNN-based Encoder-Decoder neural network. Reducing manual meta-data retrieval and covering 56% of un-explored/large documents led to an honourable mention in the Technology Innovation Program 2021.
- **Open AI Cloudathon** – Leading technical developments on fine-tuning Open AI's GPT-3 model on MS's financial corpus in Azure.
- **Call Volume Analysis** – Analyzed patterns, seasonality, and correlated call-volume spikes with market to track caller intents; built a call-intent classifier using annotated call transcripts. Build a time-series model to predict call spikes for proactive management.

Zycus Infotech, Cognitive Division

Bangalore, India

Tech-Lead (Artificial Intelligence – Machine Learning)

February 25, 2019 – July 17, 2020

- **Meta-data Extraction Bot** – Modelled an Information Extraction classifier to extract meta-data from PDF invoices using stacked text-numeric inputs in a bidirectional LSTM. With a 87% precision, it quickly became the most profitable product in Zycus's AI - Suite
- **Email Classifier Bot** – Implemented an ensemble of semantic + syntactic classification technique to create a real-time email classifier for categorizing email with attachments. Reducing human intervention by 65% the model achieved an F1 score of 0.84

Wipro Technologies, Digital, ML and Innovation Division

Bangalore, India

Senior Project Engineer (Machine Learning)

July 21, 2016 – February 18, 2019

- **IR Chatbot** – Using coreNLP dependency parsers, deep learning classifier for ranking document-sentence similarity lookups, and Word Mover's Distance for retrieving sentence-paragraph candidates, created an Information Retrieval engine for generating ranked responses for a given query. Implemented supervised learning using annotated query-candidate paragraph mapping
- **Network Bandwidth Prediction Bot** – Leveraging seasonality, trend, and sliding-moving-average to engineer features from time-series data, implemented an ARIMA model to forecast network-bandwidth usage over the next six months for proactive resource allocation

PROJECTS AND INTERNSHIPS

Slope reliability prediction using Monte Carlo simulation | IIT BHU Project | Team Size: 1

May 2015 – April 2016

- Probabilistic analysis and estimation of slope stability using historical soil data computation in MATLAB
- Simulated findings using a C++ Visual Studio Windows application and presented it at annual IIT BHU departmental seminar 2016

Stress-Strain Computational Modulation for Circular Tunnels | IIT BHU Project | Team Size: 2

Jan 2015 – March 2015

- Formulated computational analysis in Phase-2 software to predict strain-stress components associated with climate and time variability

DMT Consultancy, Analytics and Planning Division

Kolkata, India

Internship – Data Analyst (Machine Learning)

May 15, 2015 – June 26, 2015

- Deduced 24 features out of ~200 applying principal component analysis along with feature scaling, transformation and regularization to create a multi-variate regression model to predict feasibility value for a suitable mine surrounding
- Analyzed multiple regularization techniques with variable gradient descent momentum to optimize the model

Caritas Italiana, Data and Smart Application Division

Padova, Italy

Internship – Computer Programmer

June 16, 2014 – July 27, 2014

- Derived insights for their mobile application using clustering on demographics data. Extrapolated results for planning fund allocation in their global distribution project. Escalated the research using tree-dendrograms to determine heuristics based cluster size
- Presented my findings to the department of mathematics at University of Padova as a joint venture between Caritas and the university

INDEPENDENT PROJECTS AND CERTIFICATIONS

- ML for Good Hackathon 🏆 : Initiative to generate insights from Child Mind Institute's clinical transcripts
- Recommendation Engine 🏆 : Using Classification techniques to develop Netflix's Movie Recommender System from scratch
- Q&A Chatbot Capstone 🏆 : Developed conversational chatbot using negative sampling and deep learning on SQuAD dataset
- Mathematics behind ML 🏆 : Approached 24 ML techniques from scratch using mathematical fundamentals to each algorithm
- NLP Toolkit 🏆 : Constructed various NLP essentials like Chunking, Dependency parsing, Word Sense Disambiguation, NER
- Regularization Techniques 🏆 : Explored regularization in detailed for penalizing regression and classification problems
- **Certified:** "Machine Learning and Text Analytics"- Deep Learning and NLP, StackRoute Learning Inc., 2017
- **Certified:** "Advanced Python" and "Python for Data Science", Wipro Digital, 2018
- **Certified:** "Advanced Web-Development: HTML, CSS, Javascript, Bootstrap", Wipro Digital, 2017, 2018
- **Certified:** "Web-Development application using PHP", N.I.I.T India, 2014

HONOURS AND EXTRA-CURRICULARS

- **Winner:** Morgan Stanley's youngest Leadership Award, Highest ceremonial event, Morgan Stanley 2022
- **Winner:** ML Hackathon benefitting Child Mind Institute, ML Hackathon for Good 2021, Morgan Stanley 2021
- **Honourable Mention:** Meta-data extraction tool for financial docs, Document-AI, Tech Innovation Program, Morgan Stanley 2021
- **Lead Instructor,** Machine Learning: Natural Language Processing, Tech Club, Morgan Stanley 2021
- **Subject-matter Expert (SME)** in Machine Learning for Data Science, Centre for Development, Morgan Stanley 2021
- **Felicitated:** "Excellence Award" for developing Meta-data Extraction tool for Invoices, Zycus Infotech 2019
- **Felicitated:** "The Extraordinary Award" for outstanding achievements in ML innovation, Wipro Digital 2018
- **Presenter:** "Slope Reliability using Monte Carlo Simulation", Undergraduate Mining Symposium, IIT BHU 2016
- **Teaching Assistant** in Computer Applications in Mining, Dr. Tarun Verma, Dept. of Mining Engineering, IIT BHU 2015-16
- **Presenter:** "Fund-Allocation Demographic Segregation", Dept. of Pharmaceutical Sciences, Università degli Studi di Padova 2014
- **Member** of Music Club - Indian Classical Instrumentation "Tabla", Music Club, IIT BHU 2014
- **Vice-Captain** of Undergraduate Cricket Team, Sports Club, IIT-BHU-Gymkhana, IIT BHU 2013-14
- **Winner:** 2nd position for aquatic line-follower Bot in underwater track, Technical Festival, "Technex-13", IIT BHU 2013
- **Winner:** 1st position for surface line-follower Bot for measuring distances, Technical Festival, "Mettle-12", IIT BHU 2012
- **Winner:** 1st position in a team of four at Robo-Soccer against 60+ teams, Robotics Festival, "RoboScoccer-12", IIT BHU 2012

VOLUNTEER SERVICE

- 3 hours/week for Mental-Health Support initiative to educate about mental wellbeing, Morgan Stanley, Bangalore, India 2020
- 20 hours service at Caritas by teaching computing concepts and coding to specially-abled, Caritas Italiana, Padova, Italy 2014
- 16 hours service at Padova Central soup-kitchen carrying out routine aid to the homeless, Caritas Italiana, Padova, Italy 2014
- Served for development of education services in villages near Varanasi as a Technical Supervisor, AIESEC Varanasi, India 2014-16
- Served for a social initiative by teaching Maths to a 30-student batch at a government school, KashiUtkarsh, Varanasi, India 2013-16
- Served in "Clean India Movement" and "City Marathon – Educate the Girl Child" initiative, Varanasi, India 2013-16