Abhilasha Lodha

📞 413-315-7618 ✉ alodha@umass.edu 🔗 linkedin.com/in/AbhilashaLodha ⚙ github.com/AbhilashaLodha

EDUCATION

University of Massachusetts Amherst   **Sep 2022 - May 2024 (Expected)**
MS in Computer Science (Data Science Concentration) | GPA: 4.0/4.0   *Amherst, MA*
Courses: Advanced Machine Learning, Natural Language Processing, 3D Computer Vision, Reinforcement Learning, Systems, Applied Statistics

Delhi Technological University   **Aug 2014 - May 2018**
B.Tech in Electrical & Electronics Engineering | GPA: 8.99/10 | Department Rank 3 out of 110   *Delhi, India*
Courses: Data Structures & Algorithms, Advanced Mathematics, Programming Fundamentals

EXPERIENCE

Ericsson, *Data Science Intern*   **Jun 2023 - Present**
Machine Learning Department *- Computer Vision*   *Plano, Texas*
- Developed & assessed diverse machine learning models across **10+ telecom categories** to optimize & streamline site inspection processes [GLIP]
- Spearheaded the integration of the models with the Close Out Package application, enabling Subject Matter Experts to effortlessly utilize the models for site inspection analysis & **reduce manual effort by ∼60%**

Microsoft AI, *Graduate Research Assistant*   **Feb 2023 - Jun 2023**
MAIDAP *- NLP & Transfer Learning*   *Cambridge, Massachusetts*
- Built **Parameter Efficient Fine-Tuning (PEFT)** strategies for language encoders, leveraging Fisher matrix to identify optimal layers to fine-tune using ∼100 samples from each GLUE & SuperGLUE tasks [BERT, RoBERTa, XLNet]
- Conducted fine-tuning experiments & compared accuracies between full-model & the identified **top 1-5 layers** from Fisher scores, highlighting the effectiveness of PEFT approach [BERT, RoBERTa, XLNet]

EXL AI R&D, *Senior AI Developer*   **Jul 2021 - Jul 2022**
Xtracto.AI *- Computer Vision & NLP Asset*   *Gurgaon, India*
- Automated an end-to-end pipeline to **increase efficiency** of processing financial statements by ∼**93%**. Implemented borderless & bordered table detection, information extraction, & table classification [FasterRCNN, OCR, Naive Bayes]
- Created a high-performance solution in a multi-threaded environment to extract & map 10+ data points from Spanish & English invoices, achieving a **response time of ∼3 sec per invoice** [AWS Textract, AWS Translate APIs]

Accenture AI, *Advanced Application Engineering Analyst*   **Sep 2018 - Jun 2021**
Image Analytics Service Platform *- Computer Vision Asset*   *Gurgaon, India*
- Designed a geospatial image analytics system to pre-process Landsat8 images, compute satellite indices (NDVI, NDWI, NDBI) & predict up to 5 classes with an **IoU score of 93%** [UNET, Pansharpening]
- Built & deployed a Covid-19 safety management system across **45 Accenture India facilities** for mask detection, social distancing violation detection & temperature measurement on 20,000 camera feeds [Yolo V5, Flir Image Extractor]

MyWizard IngrAIn Platform *- Machine Learning & NLP Asset*
- Optimized a predictive model with an **AUC score of 94.41%** for a Fortune 500 client to forecast & monitor customers at risk of default payments, mitigating financial losses [Decision Tree, Random Forest, XGBoost]
- Engineered an abstractive text summarization system to condense critical information from lengthy emails into conceptual summaries with a **ROUGE-2 score of 89%** [BART, GPT, T5 Transformers]

PUBLICATIONS

"On Surgical Fine-Tuning for Language Encoders" *(In Review)*   **EMNLP'23**
- Devised **selective fine-tuning** using Fisher matrix to enhance performance on GLUE & SuperGLUE tasks for 3 encoders

"Floor Space Optimization and Recommendation System in 2D Space" *(Link)*   **CCVPR'21**
- Developed a solution for optimizing empty floor space in balcony garden design recommendations with **IoU score of 96.4%**

"Borderless Table Detection and Extraction in Scanned Documents" *(Link)*   **CCVPR'21**
- Designed a pipeline for bordered & borderless table detection & data extraction with an **accuracy of 98.4%**

PROJECTS

- Developed code summarization system for 3 languages. Fine-tuned model with **varied configurations**, incorporating adversaries (dead code, identifier renaming, commented code) to understand code semantics [CodeT5 Transformers]
- Implemented a chatbot-based system for **intent classification & entity extraction**, streamlining performance monitoring & workload management for a large team of 100 engineers [Rasa, TF-IDF, GloVe, Word2Vec, spaCy NER]

SKILLS

Language & Technologies: Python, C, C++, R, HTML, CSS, Javascript, Flask, Linux, Docker, SQL
ML Frameworks & Tools: TensorFlow, Keras, PyTorch, OpenCV, Scikit-Learn, NLTK, Numpy, Pandas, Spacy
Others: AWS (Lambda, EC2, S3, Sagemaker, Step Functions, Textract, Translate, Kinesis), JIRA, Version Control (Git)

LEADERSHIP & AWARDS

- Found **own tech start-up "Design Dockyard"** effectuating 50+ international projects in graphic & UI/UX design
- Won **1st** position across **18 countries & 531 teams** in Accenture Global Artificial Intelligence Hackathon