

# Abhilasha Lodha

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

## EDUCATION

### University of Massachusetts Amherst

MS in Computer Science (Data Science Concentration) | GPA: 4.0/4.0

Sep 2022 - May 2024

Amherst, MA

### Delhi Technological University

B.Tech in Electrical & Electronics Engineering | GPA: 8.99/10 | Department Rank 3 out of 110

Aug 2014 - May 2018

Delhi, India

## WORK EXPERIENCE

### Ericsson, Data Science Intern

Jun 2023 - Present

Machine Learning Department - NLP & Computer Vision

Plano, Texas

- Devised a solution to map telecom questions with images, encompassing both aerial drone captures and conventional snapshots to **reduce manual effort of SMEs by ~80%** [Azure Custom Vision API]
- Pioneered the integration of diverse vision models across **10+ telecom categories** with the Close Out Package application to streamline the site inspection process [GLIP, Prompt Engineering]

### Microsoft AI, Graduate Research Assistant

Feb 2023 - Jun 2023

MAIDAP - NLP & Interpretable AI

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 & bottom 1-5 layers** from Fisher scores, highlighting the effectiveness of PEFT approach

### EXL Digital 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 IngrAI 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 [Regression, 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]

## LEADERSHIP EXPERIENCE

- 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

## PUBLICATIONS

### "On Surgical Fine-Tuning for Language Encoders" (Accepted)

EMNLP'23

- Devised **selective fine-tuning** using Fisher matrix to optimize performance of Large Language Models (LLMs)

### "Robust Code Summarization" (Accepted) [LINK]

EMNLP'23

- Assessed Large Language Models' (LLMs) code summarization capability with semantic preserving **code transformations**

### "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

- Implemented a chatbot-based system for **intent classification & entity extraction**, streamlining performance monitoring & workload management for a large team of 100 engineers [Conversational AI, Rasa, TF-IDF, GloVe, Word2Vec, spaCy NER]
- Optimized a visual search & recommendation system with a **cosine similarity of 92%** to generate 5 similar apparel images from 1 input image using Amazon Fashion dataset [ResNet, Attention GANs, MXNet, KNN]

## SKILLS

**Languages:** Python, C/C++, R, HTML, CSS, Javascript, Flask, Linux, Docker, SQL, SSH, Unity, Spark, Hadoop, RESTful

**ML Frameworks:** TensorFlow, Keras, PyTorch, OpenCV, Scikit-Learn, NLTK, Numpy, Pandas, Spacy, LLMs, Airflow, Databricks

**Databases & Analytics Tools:** MongoDB, MySQL, PostgreSQL, Tableau, Grafana, Kibana, Splunk, Power BI

**Others:** AWS (Lambda, EC2, S3, Sagemaker, Step functions, Textract, Translate, Kinesis), Azure, Version Control (Git), CI/CD, Jira