

LINCY PATTANAIK

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RESEARCH INTERESTS

Information Extraction & Retrieval, Program Synthesis, Natural Language Processing

EDUCATION

University of Massachusetts, Amherst

Master of Science (MS)

Computer Science

September 2022 - Present

International Institute of Information Technology, Hyderabad

Bachelor of Technology (B.Tech)

Electronics and Communication Engineering (ECE)

August 2014 - April 2018

RESEARCH EXPERIENCE

Microsoft Research

Role: Research Fellow

Nov 2020 - July 2022

- Worked on text extraction from semi-structured documents which is robust to changing document templates.
- Used combination of techniques of sequence labelling model and program synthesis.
- Engagements with product teams within Microsoft - finance, Bing Ads

Traffic Signal and Sign Detection for Autonomous Driving

Supervisor: Prof. K. Madhava Krishna, B.Tech Project

Jan 2017 - Dec 2017

- Designed a system to detect, track, and localize traffic signs and signals
- Used YOLO (You Only Look Once) and pixel wise semantic segmentation on top of CNN

PUBLICATIONS

Landmarks and Regions: A Robust Approach to Data Extraction

[PLDI'22] [preprint]

ACM PLDI 2022

- Novel data extraction technique from region of interest near to value entity using program synthesis.

WORK EXPERIENCE

Microsoft India Development Center

Role: Data Scientist

June 2018 - Oct 2020

- Bing's local experience:
 - Boosted precision of query classifier by 40% by adding clustering based signals from index data
- Microsoft enterprise search in Bing:
 - Added new probabilistic query understanding models for acronym feature in enterprise search
 - Designed clicked history based pipeline for user specific suggestion.
 - Scaled enterprise suggestion promotion model to non-English markets

PROJECTS

Shape-Preserving Half-Projective Warps for image stitching

Prof. Anoop M. Namboodiri, Course project

Feb 2018 - April 2018

- Implemented a novel parametric warp, a spatial combination of a projective transformation and a similarity transformation. By this, the field of view could be extended by stitching images with less projective distortion

Image Segmentation using Watershed Transform

Aug 2017 - Nov 2017

Prof. Avinash Sharma, Course project

- Implemented a modified watershed algorithm using adaptive thresholding and adaptive masking techniques

Model to predict flight performance

Aug 2016 - Nov 2016

Prof. Avinash Sharma, Course project

- Implemented models to predict flight on-time performance, whether it was delayed or not using flight arrival and departure data
- Used machine learning techniques like SVM, random forests and neural networks

RELEVANT COURSES

Machine Learning

Intro to AI
Information Retrieval
Digital Image Processing
Computer Vision

Programming

Algorithms & OS
Computer Programming
Data Structures
Computer System Organisation

Mathematics

Linear Algebra
Discrete Mathematics
Probability and Random Processes

TECHNICAL SKILLS

Programming Languages:

C/C++, C#, Python, MySQL

Frameworks & Libraries:

TensorFlow, Keras, PyTorch, Caffe, OpenCV, [PROSE](#)

TEACHING EXPERIENCE

IMA304 - Linear Algebra

Jan 2018 - April 2018

- Made assignments and graded

IMA303 - Differential Equations

Aug 2017 - Nov 2017

- Made assignments and graded

ECE339 - ECE Lab

Jan 2017 - April 2017

- Conducted lab sessions and taught simulations on MATLAB