

Anish Pimpley

MS IN COMPUTER SCIENCE · CONCENTRATION : DATA SCIENCE

Education

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University of Massachusetts Amherst

Massachusetts, US

M.S. IN COMPUTER SCIENCE | GPA : 3.82 / 4

Jan. 2017 - PRESENT

Coursework: Artificial Intelligence (683), Applied & Adv. Machine Learning (589,689), Systems for Data Sci. (590DS), Algos. for Data Sci. (514), Probabilistic Graphical Models (688), Intelligent Visual Computing-3D Vision (590IV), Affective Computing (527), Deep Learning (682)

Visvesvaraya National Institute of Technology (NIT Nagpur)

Maharashtra, India

B.TECH IN MECHANICAL ENGINEERING

Aug. 2011 - May, 2015

Coursework: Artificial Intelligence, Computer Vision, Computer Graphics, Machine Automation

Experience

Mathworks

Boston, US

COMPUTER VISION INTERN

May 2018 - Present

- Implementing State of the Art Vision & Deep Learning models for the Computer Vision and Systems Toolbox.
- Built a pipeline for converting hand drawn sketches to working simulink programs using structure extraction and detection methods.

Microsoft Research Maluuba, Montreal

Massachusetts, US

GRADUATE STUDENT RESEARCHER | INDUSTRY MENTORSHIP | ADVISOR: DR. SHABANIAN, PROF. ANDREW MCCALLUM

Jan. 2017 - May 2018

- Developed novel architectures for **Visual Question Answering (VQA) for relational reasoning**.
- Proposed 4 models based on Conditional Batch Norm, **Attention** and **Relation Nets**.
- Achieved **results competitive with SOTA** on CLEVR and FigureQA datasets

UMass : Machine Learning for Data Science lab.

Massachusetts, US

GRADUATE STUDENT RESEARCHER | ADVISOR : PROF. BENJAMIN MARLIN

May. 2017 - Aug 2017

- Investigated methods for Stage-wise Regularization in **Neural Network based sparse Cascade Classifiers**
- Proposed a novel method for cascade configuration in **computation sensitive environments**.
- Guided selection of number of stages & model sparsity using regularization strength as a greedy heuristic.

SenseHawk

Bangalore, India

MACHINE LEARNING ENGINEER

Jun. 2016 - Nov. 2016

- Developed a **U-net inspired CNN** for **terrain segmentation and labeling of 3D point clouds** of geographic landscapes.
- Utilized classical vision methods such as topological transforms, density based estimation and gradient based feature engineering.

Honda Motor Co

Gurgaon, India

EXECUTIVE ENGINEER

Jul. 2015 - Feb. 2016

- Devised a **failure forecasting regressor**. Predicted batch rejection likelihood for parts supplied by 3rd parties.
- Cleaned and analyzed data set of 30k failure profiles and **correlated localized stress concentration with failure symptoms**.

Projects

Cascaded Loss Functions for Computationally Efficient CNNs

UMass Amherst

EXPLORING SOFT CASCADE, MSDNET & FIRM CASCADE LOSS WITH VARIED NETWORK ARCHITECTURES TO ACHIEVE HIGH AUROC

Sept. 2017 - Dec. 2017

- Analyzed early predictions wrt. classifier position, threshold progression
- Achieved early prediction in over 90% images with overall accuracy of 97% on noisy MNIST dataset.

Autonomous SLAM based Material Handling Robot

NIT Nagpur

UNDERGRAD THESIS: DESIGN & FABRICATION OF A ROBOT CAPABLE OF AUTONOMOUS GRASPING, NAVIGATION & PERCEPTION.

Aug. 2014 - May. 2015

- Utilized **SLAM** to obtain 2D map of an isolated room & agent localization using Matlab.
- Designed a novel **adaptive claw gripper and robotic U-arm** with a force redistributing mechanism to maximize surface contact.

Miscellaneous Projects

Domain

- Master's project: Using semantic relationships between objects to improve detections (Ongoing) NLP, Vision, Common sense models
- Simultaneous **image classification and localization** using multi objective **Auto encoder** in PyTorch Deep Learning, Vision
- Implementation of a Seq2Seq RNN model for **synthesizing facial movements from human audio**. Spatio-temporal Deep Learning
- EM** from first principles for a **Mixture Model** with Gaussian, Multinoulli and Poisson components. ML theory, PGMS
- Complete crime prediction pipeline** using infrastructure and socio-economic factors as indicators. Computational Social Science
- Developed a distributed **MapReduce-esque fault tolerant Master & Slave framework** from scratch in Java. Big Data Systems
- Devised a **Pregel like parallel graph analytics framework** from scratch for PageRank in Java. Big Data Systems

Skills

Programming Python, Matlab, Java, C, LaTeX, Shell Scripting

Miscellaneous GIT, AWS, MapReduce, SKlearn, Tensorflow, PyTorch, Theano, Jira, Confluence, Perforce Helix VCS, Linux, Windows