Anish Pimpley

MS in Computer Science · Focus : Data Science

(+1) 425-362-8258 | apimpley@cs.umass.edu | anishpimpley.github.io | anishpimpley

Education

University of Massachusetts Amherst — *Massachusetts, US*

M.S. in Computer Science | GPA : 3.82 / 4 — *Jan. 2017 - PRESENT*

Coursework: Artificial Intelligence (683), Applied & Theoretical 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)

Visvesvaryaya 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 - Dec 2018*

- Implemented State of the Art Vision & Deep Learning models for the Computer Vision and Systems Toolbox.
- **Extended Deeplab v3+ as a generic concept** for any feature extractor and formally deployed it as a convenience function.
- Built a tool 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. 2018 - 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*

- 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*
- **Expectation maximization** from scratch for **mixture models** 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 , LaTeX, Shell Scripting

Miscellaneous GIT, AWS, MapReduce, SKlearn, Tensorflow, PyTorch, Theano, Jira, Perforce Helix VCS, Unix, iPython