
Education

Indiana University Bloomington

Master of Science in Computer Science (GPA: 3.82)

Thesis: Convolutional Neural Networks for Infrared, Fine-Grained, and Egocentric Scene Classification

Advisor: Dr. David Crandall

Bloomington, Indiana

May 2016

Dhirubhai Ambani Institute of Information and Communication Technology

Bachelor of Technology in Computer Science

Gandhinagar, India

May 2010

Technical Skills

Languages & Technologies: C++, Python, CUDA, Java/J2EE, R, MATLAB, Octave, C, SQL, Linux, Git.

Libraries: OpenCV, scikit-learn, TensorFlow, Caffe, Torch, Theano, NumPy, Pandas.

Work Experience

Software Developer (Computer Vision / Deep Learning)

Bloom Technology Solutions

Aug. 2016 – Present

Bloomington, Indiana

- Developing a library to perform Optical Character Recognition (OCR) on photos of non-flat labels from prescription bottles and tubes to recognize various information like drug name, type, dosage, and contents.

Research Intern (Computer Vision / Machine Learning)

IU Computer Vision Lab

May 2015 – July 2015

Bloomington, Indiana

- Developed & Applied machine learning techniques to images in Infrared spectrum for **pedestrian recognition**.
- Trained **Deep Learning** based model on first-person images with text to automatically generate image captions.

Associate Instructor

Indiana University Bloomington

Aug. 2014 – May 2016

Bloomington, Indiana

- Taught graduate level Computer Vision and Elements of Artificial Intelligence courses.
- Designed labs, projects, and assignments. Reviewed and critiqued student submissions.

Software Engineer (Data)

Hewlett-Packard

Aug. 2010 – Aug. 2014

Bangalore, India

- Developed **machine learning** models for predicting departing customers by processing Churn rate data.
- Designed & developed data processing system capable of **handling several terabytes** per day.
- Implemented ML and ETL algorithms to generate insights by processing **high volume data**.
- Technologies: Machine Learning, Data Processing/Analysis, **Python**, **Java**, SQL.

Academic Projects (see all: <http://gsumit.com/projects>)

Kaggle Right Whale Recognition (Computer Vision: Image Classification, Deep Learning)

Nov. 2015

- Developed a models to classify individual whales using **C++**, **Python** and **deep learning** techniques.
- Extracted features from a Convolutional Neural Network (CNN) and trained an SVM to identify individual whales.
- Fine tuned pre-trained CNN models to Right Whale data and combined different techniques to improve accuracy.

Bird & Squirrel Alert System (Computer Vision: Object Recognition & Localization)

Apr. 2015

- Developed an Object Oriented alert system in **C++** to detect and locate birds & squirrels on a birdfeeder from video.
- Improved the detection accuracy by using motion detection and optical flow information.

First-person Scene Classification (Computer Vision: Image Classification, Deep Learning)

Feb. 2016

- Trained a multi-label deep learning system to classify images from wearable camera into several categories based on Location, Activities and Objects (like indoor, outdoor, restaurant, eating, driving).
- *Languages & Tools:* **C++**, **Python**, Caffe, scikit-learn.

Kaggle Microsoft Malware Classification Challenge (Machine Learning)

Apr. 2015

- Designed and trained a classification model on 500 gigabytes of malware source code using Extreme Gradient Boosting & Random forest. Extracted features based on byte 4-grams frequency and instruction count.

Activities and Recognition

- Selected amongst **top 12 national finalists** in event Re-Kriti 2008 and recognized by NIF (**National Innovation Foundation**, Dept. of Science and Technology, Govt. of India) for **creativity** and **innovativeness**.
- Recognized for *Making a Difference* at Hewlett-Packard for preventing several SLA breaches.