Sumit Gupta

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Education

Indiana University Bloomington *Bloomington, Indiana*
Master of Science in Computer Science (GPA: 3.82) *May 2016*
Thesis: Convolutional Neural Networks for Infrared, Fine-Grained, and Egocentric Scene Classification

Dhirubhai Ambani Institute of Information and Communication Technology *Gandhinagar, India*
Bachelor of Technology in Computer Science *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

Research Intern *(Computer Vision / Machine Learning)* *May 2015 – July 2015*
Indiana University Bloomington *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 *Aug. 2014 – May 2016*
Indiana University Bloomington *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) *Aug. 2010 – Aug. 2014*
Hewlett-Packard *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 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.

Game Maker & Breakout Application (Software Development) *Feb. 2015*

- Implemented an **object-oriented** Java application based on MVC architectural pattern to create wide range of stand alone games. Functionality include: previewing the game, saving current instance, assigning actions to sprite etc.
- Developed Breakout game in **Java** using Game Maker with play, pause, replay, undo, save and load game modes.

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.