

# Sumit Gupta

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## Education

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### Indiana University Bloomington

Master of Science in Computer Science (GPA: 3.7)

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

Bloomington, Indiana

May 2016

### Dhirubhai Ambani Institute of Information and Communication Technology

Bachelor of Technology in Computer Science

Gandhinagar, India

May 2010

## Technical Skills

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**Languages & Technologies:** C++, Python, R, MATLAB, Java/J2EE, C, SQL, Spring, Hibernate, Linux, JUnit, Git.

**Libraries:** OpenCV, Caffe, Torch, Sklearn, Theano, Tensorflow, NumPy, Pandas.

**Data:** MySQL, Oracle, MongoDB, Hadoop, Spark, Hive, Pig, Cassandra, DataStage, Informatica.

**Web:** HTML/CSS, JavaScript, PHP, REST, SOAP, AWS, XML, AngularJS, jQuery, JSON, AJAX.

## Work Experience

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### Research Intern (Computer Vision / Machine Learning)

Indiana University Bloomington

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 English description.

### Software Engineer (Data)

Hewlett-Packard

Aug. 2010 – Aug. 2014

Bangalore, India

- Designed & developed backend services for data processing system capable of **handling several terabytes per day**.
- Implemented **Machine Learning** and **ETL** algorithms to help Data Scientists process **high volume data**.
- Responsible for business critical processing of Churn rate data to **predict** departing customers from company services.
- Automated and Improved efficiency of long running processes by **tuning SQL queries** and fixing data quality issues.
- Technologies: Machine Learning, Data Processing/Analysis, **Python**, **Java**, SQL, **Hadoop**, **Mahout**, Cassandra.

## Academic Projects

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

Nov. 2015

- Developed a system 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 & locate birds & squirrels on a birdfeeder from video.
- Improved the detection accuracy by including 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 (indoor, outdoor, restaurant, eating, driving etc.).
- Languages & Tools:* **C++**, **Python**, R, Caffe, scikit-learn.

### Kaggle Microsoft Supervised Malware Classification (Machine Learning)

Apr. 2015

- Designed and trained a classification model on 500 gigabytes of malware programs (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

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- 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.