

# Pankaj Bhambhani

Masters Student at UMass Amherst, 3 years of Professional Experience. Seeking Machine Learning, NLP, Data Science, or Dev Internships.

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## Experience

**Play Games 24x7 Pvt. Ltd.** - Software Development Engineer (July 2013 - May 2016 – 2 years 10 months)

Worked as SDE for RummyCircle.com, one of the major products of Games24x7. Involved in Full Stack Web Development.

**Accomplishments** - Horizontal scaling and optimization of distributed caches using Ehcache and Terracotta, Building Restful Services for handling Cash and Reward Point transactions, strengthening application security using Spring Security, Building Event Detection System and Optimization of gameplay bot.

**Technologies** - Java, Spring, Spring Security, Jersey (JAX-RS), Hbase, Ehcache, Terracotta, Redis, Akka, MySQL, MyBatis, Node.js.

**KDE (Google Summer of Code)** - Software Developer (May-July 2011 & May – August 2012 – 7 months)

Integrated features of Facebook into KDE's micro blogging client, Choqok (Under Google Summer of Code 2012). Initially I helped built the base library LibKFBAPI, and was later involved in using the library to build features such as the ability to create a post, view posts as well as like and comment on a post.

**Technologies:** KDE4 based on Qt (C++ based GUI Framework). **Link** - <https://github.com/pankajb64/choqok-facebook>

**Oracle** - Automation Engineer (December 2012 to May 2013 – 6 months)

Worked as an Automation Engineer with Merchandise Operations Management (MOM) Team at Oracle Retail Used technologies like HP Quick Test Professional and Selenium Webdriver for scripting and execution of test cases.

## Projects

**Image Captioning with Visual Attention** - Machine Learning Course Project (October – December 2016)

We used gradient descent based training algorithms incorporated with an attention mechanism to build a deep learning model that learns to generate image descriptions given an unseen image, inspired by the state-of-the-art work in this field. Our results showed that attention based deep learning models can learn to produce good image captions and can also generate visualizations to infer how a model can focus on certain parts of the image while predicting the next word. We used a Convolutional Neural Network (CNN) to generate attention based features and a Long Short-term Memory Network (LSTM) as a recurrent net for generating image captions. **Technologies:** Keras, Theano, Python. **Link** - [https://github.com/pankajb64/image\\_caption\\_using\\_attention](https://github.com/pankajb64/image_caption_using_attention)

**Automated Summarization of a Book using its Index** - Natural Language Processing Course Project (October – December 2016)

Generating coherent summaries of long documents such as books is a relatively untouched field, with most of the research work being focused on short documents. In this Project, we looked at summarization of books which have a back-index as a novel technique for generating good summaries. We also provided a new dataset for the evaluation of such summarization systems. The results were promising and merit future research. **Technologies:** NLTK, Python

**Link** - <https://github.com/pankajb64/bookesis>

**Pictionary with Jibo** - HackUMass 2016 (October 2016)

Taught the robot Jibo to play Pictionary on a set of hand-drawn images. We used Jibo SDK to capture a picture and send it off to be classified by our custom-trained tensor flow neural networks. We used openCV to detect the playing area within the board and crop off the rest of the image and make it black and white, we then passed it off to our TensorFlow model to be classified. We built the neural network using hundreds of images pulled automatically from Bing Image Search and used TensorFlow's Image Recognition Algorithm "Inception" to train the model. **Technologies:** TensorFlow, Jibo SDK, OpenCV, Python

**Link** - <https://github.com/pankajb64/jibo-pictionary>

**Duckworth Lewis (D/L) Calculator for Android** - Personal Project (April – May 2015)

Designed and Built Duckworth Lewis Calculator - an Android application which lets users predict scores and results in rain interrupted cricket matches.

**Technology:** Android. **Link** - <https://github.com/pankajb64/duckworth-lewis-d-l-calculator-android>

## Education

**University of Massachusetts Amherst**

MS - Computer Science (September 2016 – PRESENT)

GPA – 4.0

**Relevant Coursework** – Machine Learning, Natural Language Processing, Artificial Intelligence, Systems

**DA-IICT**

B.Tech. - Information & Comm. Technology (2009-2013)

CPI – 8.5 (GPA – 3.3)

**Relevant Coursework:** Algorithms, Data Structures, Computer Networks, Databases, Operating Systems, Systems Software, Cryptography, Security Protocols, Graph Theory, Computer Organisation, Natural Computing

## Skills

**Interest Areas** - Machine Learning, Natural Language Processing, Algorithm Design and Analysis, Software Security, Computer Networking, Information Retrieval, Artificial Intelligence

**Programming Languages** - Java, Python, C++, MySQL, JavaScript, Bash (Familiarity with: Scala, Ruby, C, HTML, CSS)

**Development Technologies** – Keras, Theano, Spring, Qt, Android, Hbase, Ehcache, Terracotta, RabbitMQ, Redis, Akka, JDBC, Hibernate, MyBatis, Node.js. Apache Tomcat, jQuery, Django, Rails, Selenium

**Software Tools Used** - Git, SVN, Ant, Maven, Eclipse, Android Studio, Wireshark, Vim