

Nikhil Karnwal

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EDUCATION

Indian Institute of Information Technology

Bachelor of Technology with Hons., Information Technology (IT)

GPA: 8.92/10

Allahabad, India

July, 2010 - May, 2014

AREA OF INTEREST

Machine Learning, Artificial Intelligence, NLP, Deep Learning using CNN, Distributed System, Design and Analysis of Algorithms, Data Structures.

ACADEMIC PROJECTS

Extraction of Multi-Word Expressions

Developed a semi-automated method for the large-scale extraction of multiword expressions from large corpora. Extraction was based on the linguistic and statistical filtering using Pointwise Mutual Information.

Package used - Java, Stanford POS tagger, Word Net.

OCR for handwritten text using RNN

Developed a system to recognize handwritten text in an image. The project involved processing of text image for extracting features and used RNN (Recurrent Neural Network) with BPTT as learning algorithm for their classification process. I further implemented it using CNN as it performs better in image processing.

Package used - Matlab.

Simulation of Ecosystem to understand behavior of Agents

Developed a simulator to understand the behavior of agents (process) in their ecosystem, their interaction considering the varying conditions of the environment. This helps in designing efficient system by optimizing resources allocation, process creation, and defining their interaction.

Package used - Java.

PERSONAL PROJECTS

Transfer Learning – Image Classifier using pre-trained InceptionV3 model (*Open Source*)

Developed a library to create image classifier using Transfer Learning paradigm through tensorflow. Currently, it is using InceptionV3 pre-trained deep learning model and generating feature vector that are being again passed to a Dense layer.

Source code – https://github.com/nikhilkarnwal/projects/tree/master/machine_learning/transfer_learning

Autonomous Query Clustering using DBSCAN (*Open Source*)

Developed a tool to cluster syntactically similar queries by using Longest Common Subsequence as distance metric and DBSCAN as clustering algorithm. One of its main application is that it helped in providing auto suggest for misspelled queries.

Source code – https://github.com/nikhilkarnwal/projects/tree/master/machine_learning/query_clustering

NoSQL Database for Android (*Open Source*)

NoSQL i.e. Schema-less database for android with the capability of creating multiple indexes on the single table.

Source Code – https://github.com/nikhilkarnwal/nosqladb_android

WORK EXPERIENCE

Uber India

October, 2018 – Present

Software Engineer 2

- Developing Insights generation platform in Finance team using Machine Learning like Clustering, Regression, Pattern extraction, etc for developing Business Insights powered by MichelAngelo, an Uber distributed machine learning platform using golang language.
- Developed service to cluster users using k-means clustering model on the basis different business metrics and extract insights on real time data.
- Developed ETL pipeline on Hive to extract features from daily users' data that is being consumed by k-means model for clustering.
- Optimized memory consumption of backend services by upgrading sequential data computation to stream based computation.

Microsoft R&D India

July, 2014 – October, 2018

Bing (Search Engine), Software Engineer 2

- Implemented feature extraction in document understanding pipeline for **Index generation and Index serving** in Web data platform in Bing using .Net.
- Implemented library for answers generation and document summarization for **Question-&-Answering system** in Bing by leveraging Deep Semantic Similarity Model and Decision Tree.
- Developed **web-ranking algorithms** for improving the relevance of search results in Bing for global markets by using Decision Tree and Deep Neural Network.
- Developed **query and document classifiers** for the classification of search queries by using SVM models and DNN models.
- Developed a **RESTful service on azure using Azure Redis Cache database** for serving as backend for exam-result Answer in Bing using .Net.
- Developed **an android application for peer to peer data transfer** between two mobiles over the intranet.

Microsoft R&D India (Internship)

Bing, Software Developer Engineer, Internship

May, 2013-July, 2013

Developed web service and database for Mortgage answer for showing mortgage information in search results for US market.

Freelancer

Independent

Jan, 2014-June, 2014

- Developed around 36 projects related to Java, Networking, C#, C++, etc.
- Projects - <https://www.freelancer.in/u/alquarizm.html>

BLOG & REPOSITORY

Alquarizm (Blog)

I like to share my learning on machine learning and algorithm through this blog.

Link - <http://www.alquarizm.wordpress.com/>

Git Repository

Machine Learning – https://github.com/nikhilkarnwal/projects/tree/master/machine_learning

Algorithm & Data Structures – <https://github.com/nikhilkarnwal/Algorithm>

SKILLS

Languages known: C, C++, Java, C#, Python, Android, .Net, GoLang.

Libraries explored: STL, OpenGL, CoreNLP by Stanford, Scikit-Learn(python), Keras

Tools & services: Tensorflow, Azure technologies, Visual Studio, Netbeans, Matlab, Android Studio, Anaconda, Spyder, Elasticsearch, Casandra, Hive, kafka, MichelAngelo, PyML.