

RANRAN CAO

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PROJECTS

Movie Recommender System --- [GitHub](#)

Oct.2017-Nov.2017

- Developed a movie recommender system using Netflix dataset and the **Hadoop** platform(**Docker**, **HDFS**).
- Calculated movie rating matrix from Netflix dataset using collaborative filtering algorithm.
- Implemented **MapReduce Java** code for co-occurrence matrix generation and multiplication of co-occurrence matrix and movie rating matrix to obtain recommendation list.

Hadoop Page Rank Project --- [GitHub](#)

May.2017-July.2017

- Using **MapReduce** in Hadoop with **Java**, realized Google page rank algorithm(**Docker**).
- Established transition matrix as web page relationship representation using wiki data, with the help of MapReduce in huge matrix multiplication.
- Established the final rank of webpages by the **PageRank algorithm**, involving **HDFS**.

Machine Learning 8-Puzzle Solver and KNN Classifier Projects --- [GitHub](#)

Sep.2016-Nov.2016

- Solved the Eight Puzzle problem by **Java** using Uniform Cost Search, A* with the Misplaced Tile heuristic search and A* with the Manhattan Distance heuristic search respectively.
- Implemented a **Nearest Neighbor Classifier** by **Python** using an annealing algorithm, forward selection algorithm and backward elimination algorithm respectively.
- Improved the classification accuracy for big dataset from **90% to 93%** by integrating annealing algorithm with backward selection algorithm.

WORK EXPERIENCE

Deep Learning Research Assistant

July.2017-Present

University of California, Riverside

Deep Learning series projects(Techniques involve **Python**, **NumPy**, **Pandas**, **Scikit-learn**, **TensorFlow**):

- Implemented **the neural style transfer algorithm** to generate novel artistic images.
- Constructed the building blocks of **ResNets** and combined them to develop and train a neural network for **image classification**(Residual Networks).
- Developed **object detection** on a car detection dataset using **YOLO model** and tackled bounding boxes problem(Autonomous driving – **Car detection**).
- Improvised a jazz music with an **LSTM** Network.
- Built a character level text generation **recurrent neural network** to generate new names.

EDUCATION

UNIVERSITY OF CALIFORNIA, RIVERSIDE

Sep.2015 – Jun.2017

Master of Science, Electrical Engineering

Coursework: Artificial Intelligence, Data Structures and algorithms, Convex Optimization.

BEIJING UNION UNIVERSITY

Sep.2011 – Jun.2015

Bachelor of Science, Automation (concentration in Internet of Things)

Coursework: Data Structures, Java, C, Database Design & Development, Mobile Development(Android).

TECHNICAL SKILLS

Languages: Java; Python; C++; Matlab; SQL; HTML/CSS/JavaScript.

Tools: Git/Github; Unix; Docker; NumPy; Pandas; Scikit-learn; Jupyter; TensorFlow; MySQL; MapReduce; Hadoop; HDFS; Tableau; AWS EC2.