

WENJIA ZHAI

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SKILLS

- **Programming Language:** Python, Scala, R, Java, Perl
- **Programming Frameworks & Tools:** TensorFlow, PyTorch, scikit-learn, NLTK, spaCy, Gensim, tm, tidytext, Regular Expression, Spark, SQLite, MongoDB, Bash Scripting, Git, Google Cloud Platform
- **Data Science Skills:** Data Mining, Feature Engineering, Data Visualization, Natural Language Processing
- **Machine Learning Algorithms:** Neural Network, Clustering, K-nearest Neighbors, Naïve Bayes, Linear & Logistic Regression, Support Vector Machine, Random Forest
- **Operating System:** Windows, Linux/Unix (MacOS, Ubuntu)
- **Report Writing:** Microsoft Office (Word, Excel, PowerPoint), LaTeX, Markdown, Jupyter Notebook
- **Language:** Chinese, English

WORK EXPERIENCE

Internship: Python Artificial Intelligence Engineer

Huike Group

Beijing, China

Sep – Dec 2019

Rationale: The company wanted to design a program to automatically segment the videos and labeled each segment by its topic

- Segmented videos based on the length of silence period
- Built auto speech recognition system (ASR) using CTC, CNN and Attention algorithms, converted audios into texts from videos using TensorFlow
- Conducted TextRank model to extract topic of each piece of videos

Achievement: The model achieved 62.6% voice recognition accuracy compared to transcript on 20 videos, 89.2% segmentation accuracy compared to manual segmentation on same videos

ACADEMIC PROJECT

LendingClub Loan Records Analysis in Spark

Boston, MA

Feb 2020

- Constructed a Spark data pipeline in Scala
- Deployed the pipeline on Google Cloud Platform, managed by Airflow
- Loaded 2 million of loan and rejection records using Dataproc service
- Aggregated rejections and collections records, output a json file containing result

News with Similar Opinions in News in Python

Boston, MA

July 2019

- Parsed ~1000 news articles from mainstream news website
- Built a Word2Vec model to find the similar words of “say” to locate opinions in news.
- Captured and extracted opinions based on the location of “say”
- Conducted a Doc2Vec model for Latent Semantic Analysis using Gensim, obtained the articles with most similar opinions

Article summarization Generation in Python

Boston, MA

Team Leader

April 2019

- Preprocessed article contents and optional titles (tokenizing, converting to lower case, stemming, removing stop words) using NLTK
- Counted appearances of each word as word weights
- Adjusted word weights by multiplying frequency of words in content and title, if title is supplied
- Calculated the weights of each sentences based on frequency of words
- Selected the top 1/3 sentences with heaviest weights as article summarization
- created an API for this application

Pet Adoption Speed Prediction in R

Team Leader

Boston, MA

Feb 2019

- Performed **Standardization** for continuous features, **Ordinal encoding** for ordinal features, **One-hot encoding** for categorical features, **Sentiment Analysis** for text features
- Generated new features for possibly related features by concatenating them
- Applied **K-nearest neighbors** algorithm to build a baseline model
- Implemented **decision tree**, **support vector machine**, **random forest** algorithms
- Evaluated model performance by accuracy, archived 0.50 on a fine-tuned **XGBoost** model

EDUCATION

Northeastern University, GPA: 4.0/4.0

Boston, MA

M.S. in Bioinformatics

May 2020

Coursework: Bioinformatics, Statistics, Algorithms, Data Mining, Data Visualization, Machine Learning, Neural Network, Natural Language Processing, Linguistics

University of Nebraska - Lincoln

Lincoln, NE

M.S. in Chemical Biology

May 2017

Coursework: Organic Chemistry, Organic Reaction, Chemical Biology, Biochemistry, Analytical Chemistry

China Pharmaceutical University

Nanjing, China

B.S. in Pharmaceutical Chemistry

July 2011

Coursework: Inorganic Chemistry, Organic Chemistry, Analytical Chemistry, Physical Chemistry, Anatomy, Physiology, Pharmacology, pharmacognosy, Pharmaceutical Chemistry, Computer Aimed Drug Design, Spectrum