Viraj Nilakh

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Objective

Seeking summer internship opportunities as a Software Engineer for May 2017.

Education

Masters in Software Engineering, San Jose State University **Graduation: May 2018 / GPA:3.77**
BE in Information Technology, Mumbai University **Graduation: June 2015 / GPA:3.02**

Technical Skills

Programming Languages: Java, Python, PHP, JavaScript, C++
Also acquainted with: Netty, Protobuf, Java Servlets, Redis, Node JS, Express, Bootstrap, Flask, SQLAlchemy
Applications: Docker, IntelliJ, Pycharm, Eclipse, Android Studio, Dreamweaver, Sublime, Atom, NetBeans
OS: Windows, Linux **Tools:** Git, Bash, Selenium, Appium, Test Rail, Jira, Weka

Courses:

Software Systems Engineering, Enterprise Software Overview, Enterprise Distributed Systems, Enterprise Application Development, Software Quality Assurance and Testing, Web and Data Mining.

Academic Projects

Distributed File Sharing and Storage Java | Netty | Protobuf | Raft | Redis | MySQl

- Write replication on cluster(3 nodes each) to prevent data loss if one node fails, high availability and fault tolerance.
- Implemented Raft leader election to provide client with a single entry point to the cluster.
- If leader goes down reelection takes place providing client with a new leader.
- Provided dynamic node addition and deletion to the cluster with the help of timers and heartbeats.
- Implemented work stealing by followers to relieve leader from all the heavy work.
- Used Netty for asynchronous event driven application, Redis for node registration and discovery, mysql for handling files and Protobuf for high speed communication and easy language interoperability.
- Integration with 5 more clusters(3 nodes each) with common API for compatible read, write behavior.
- Implemented design patterns to achieve best coding practices, multithreading for high performance.

Quora Question Pairs Random Forest | XGBosst | SVM | SVD | TFIDF

- The goal of this competition was to predict which of the provided pairs of questions contain two questions with the same meaning.
- Used 70000 question pairs as training set and 30000 question pairs as test data set.
- Data preprocessing varied for different techniques used and included stop word removal, lemmatization, punctuation removal
- Also used TFIDF vectorization, Tokenization and SVD Decomposition
- Compared techniques like My in-house algorithm(68% accuracy), SVM(65%), Random Forest(74%), XGBoost(81%)
- XGBoost had the least log loss(0.35) followed by Random Forest(0.53).
- Used libraries like sklearn, nltk, pandas, numpy etc.

Text Clustering Bisecting K-Means | SVD | TFIDF

- Input data (provided as training data) consisted of 8580 text records in sparse format. No labels were provided.
- For evaluation purposes we used the Normalized Mutual Information Score (NMI)
- Data preprocessing included conversion of sparse matrix in TFIDF format
- SVD decomposition was used for dimensionality reduction into 2-5 dimensions
- Utilized Bisecting K-Means for clustering the text into 7 clusters with NMI as 0.7.
- Compared the Sum of Square Errors from 7-21 clusters to see which one gives the best SSE.

Online Marketplace Bootstrap | PHP | CURL | JavaScript

- Created an online marketplace website containing products accumulated from 5 different websites
- Implemented online chat facility, email confirmation , ratings and reviews, sorting, top products in marketplace etc.
- Adopted CURL calls on database for 5 different websites, Bootstrap for web UI, PHP for database connection and query, JavaScript etc.

Trip Planner Node JS | Express | REST | EJS | Google Maps, Uber, Lyft APIs | JavaScript

- Created a web app for comparing Uber/Lyft prices to recognize cheapest alternative for a route, selected by the user.
- Achieved robust handling of REST web requests using Node JS and Express.
- Integrated GoogleMaps, Uber, Lyft apis for comparing prices for a specified route.
- Implemented web design using bootstrap and EJS for templating.

Multiplayer Game On Greenfoot Design Patterns | AWS | Restlet Framework | Java | MongoDB

- Designed a game on Greenfoot explaining minimum spanning tree in a fun and easy way to kids
- Implemented Design Patterns in java for achieving best coding practices adopting Agile methodology
- Integration with cloud using AWS, Docker cloud and MongoDB for storing scores.
- Utilized Restlet framework for communication between client, on host machine and server on the cloud.