

Manthan Thakar

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EDUCATION

Northeastern University, Boston, MA

College of Computer and Information Science, GPA: 3.7/4.0

Candidate for Master of Science in Computer Science

Jan 2016 - present

Expected graduation: May 2018

Sardar Vallabhbhai Patel Institute of Technology, Vasad, India

Bachelor of Engineering in Computer Engineering, CGPA: 8.16/10

Apr 2015

TECHNICAL KNOWLEDGE

Languages:	C, Go, Java, Python, R, Scala, Racket
Platforms:	Linux, Mac OS, Arduino, AWS, Amazon EMR, Leap Motion
Software:	git, Elasticsearch, Apache Spark, Hadoop, GraphQL, Django, Flask
Databases:	Postgres, Oracle, SQL Server, MySQL, MongoDB, DynamoDB
Certifications:	Oracle Database 10g: Introduction to SQL, Oracle Database 10g: PL/SQL Fundamentals

WORK EXPERIENCE

Programming Research Lab, Northeastern University, Boston, MA

Dec 2017

Research Assistant

- Analyzing all Javascript packages on npm using dynamic analysis and dependency analysis and developing toolchain in node js to perform experiments

Lexumo, Burlington, MA

Jan 2017 - Aug 2017

Software Engineer Co-op

- Built a crawler to crawl github for 100K open source Python software projects, analyzed programming patterns using ASTs and built a source code similarity model using TF-IDF, Tree Edit Distance and Characteristic Vectors.
- Designed and developed Lexumo's licensing feature for C/C++ and Java source code, responsible for extracting license information from source code using String Matching and Information Retrieval based methods
- Designed ETL pipeline to collect metadata about all open-source projects in the world written in Java, Javascript & C

Northeastern University, Boston, MA

May 2016 - Dec 2016

HPC Graduate Assistant – Research Computing, Information Technology Services

- Automated tasks using Python and Bash scripts for monitoring of Northeastern's Discovery HPC cluster
- Assisted researchers in automating and parallelizing jobs by designing SLURM and IBM LSF batch scripts

Acharya – Helping educational institutes create efficient workflows

Dec 2014 – Dec 2015

Co-founder

- Developed the entire web application consisting of - AngularJS single page application in the frontend and REST API hosted on AWS built on top of Laravel Framework and MySQL database in the backend
- Successfully shipped the product to 10000+ users across 5 institutes

ACADEMIC PROJECTS

Spark Join optimization of RDDs, Northeastern University

Oct 2017 – Dec 2017

- Improved Apache Spark's RDD join operation execution time by **24%** and **reduced network I/O by 89%**, by building a **Scala compiler plugin**
- Modified Spark's join implementation to incorporate Broadcast joins and **improved performance by 50%**

PyDO: Python Distributed Objects, Northeastern University

Nov 2017 – Dec 2017

- Designed and implemented a distributed object system in Python that allows **distributed object-oriented programming** and keeps the object distribution, caching, placement and migration transparent to programmers

Distributed Key Value Store, Northeastern University

Nov 2017

- Designed and Built a fault-tolerant distributed key value store with proxy server in Go and node servers in Python

Thread-safe Memory Allocator Library, Northeastern University

Oct 2017

- Built a thread-safe memory allocator library including malloc, free, calloc and realloc functions with per-thread arenas in C using Buddy Memory Allocation technique

Clustering Music Artists using Apache Spark, Northeastern University

Oct 2017

- Implemented agglomerative hierarchical clustering and k-means clustering from scratch in Scala on top of Apache Spark to cluster music artists and deployed the application on Amazon EMR

Search Engine, Northeastern University

May 2016 – Aug. 2016

- Developed a multi-threaded crawler using python with distributed frontier management to crawl 200K web pages, indexed them in a distributed Elasticsearch index and implemented PageRank and HITS to rank websites
- Trained a Linear Regression model to increase the average precision of the IR system by 156%

INDEPENDENT PROJECTS

Hitch - A cross-platform Airdrop

Aug 2017 - Sep 2017

- Built a Desktop and Android application for file transfer on the local network using multicast DNS protocol for service discovery, TCP connections for data transfer, electron for Desktop App and Java for Android App