Harish Mohan

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EDUCATION

Master of Science in Computer Science *University of Southern California, CA, USA* **May 2020**
Coursework: Analysis of Algorithms, Artificial Intelligence, Web Technology, Data Mining, Machine Learning, Applied Machine Learning for Games, Information Retrieval & Web Search Engine **GPA: 3.7/4**

Bachelor of Engineering in Computer Science *Anna University - MIT, Chennai, India* **May 2018**
Coursework: Cloud Computing, Information Retrieval, Database Tuning, Networks, Data Structures, Operating Systems, Theory of Computation, Compiler Design, Parallel Programming **GPA: 9.5/10 [Gold Medalist]**

SKILLS

Programming	Python, Java, Kotlin, Go, Scala, C, C++, Android, R, Ruby
Scripting	HTML5, CSS, PHP, JavaScript (Ajax, jQuery, Angular, Node.js, React), TypeScript, Bash, YAML, Jinja, Flask
Framework	gRPC, REST APIs, Protocol Buffers, Bootstrap, Hadoop, Spark, RDF
Database	MySQL, Oracle DB, PostgreSQL, SQLite, SPARQL, GraphDB, R2DBC, Jasync-SQL
Tools	Docker, Kubernetes, Helm, Wikifier, MATLAB, Maven, Gradle, Xbee, Apache Solr, Unity
AWS Services	RDS, Aurora, Lambda, Elastic Beanstalk, EKS, ECS Fargate, ECS EC2, S3, CloudWatch, CloudFormation
Library	Tensorflow, Keras, Theano, Sci-kit learn, Pandas, Numpy, Record Linkage Toolkit

RESEARCH EXPERIENCE

SDE Database Intern, RDS Platform | *Amazon Web Services, Inc.* | Seattle, WA **May 2019 - August 2019**
- Increased the number of database connections handled by instances up to 200% by investigating and harnessing the capabilities of asynchronous Jasync-SQL driver, Goroutines and Kotlin Co-routines.
- Researched the features, use cases of container orchestration techniques such as EKS, ECS Fargate and devised an orchestration scheme to containerize, deploy, manage and monitor native applications.

Graduate Researcher | *Information Sciences Institute - USC* | Los Angeles, CA **February 2019 - Present**
- Programmed Logistic and Neural Network-based classifiers to evaluate the performance of embedding techniques such as VERSE, Word2Vec, and TransX over different classes of Wikidata for constructing Knowledge graphs.
- Constructed a Page ranking system using Apache Solr to link the entities and relations in the mention-concept graph.

Software Intern | *Centre for Technology Development & Transfer* | Chennai, India **June 2017 - August 2017**
- Led a team of 6 members in prototyping a Laser-LDR based time tracking system using python scripts with 1 millisecond accuracy and performed wireless data transfer by utilizing Arduino and Xbee modules.

Summer Research Fellow | *Indian Institute of Technology Madras* | Chennai, India **May 2017 - July 2017**
- Improved the image classification rate in CIPHAR-10 dataset by 14.3% by binarizing the weights and activation output of neural network using Stochastic descent and discretization processes employing Shift based AdaMax rule.

PROJECTS

Song Clustering using Locality sensitive hashing **April 2019 - May 2019**
- Performed K-Medoids songs clustering using Locality sensitive hashing as the distance metrics.
- Employed Map-Reduce technique in PySpark to process millions of songs and cluster them based on lyrics similarity.

Product Search using eBay API - prod-searcher.appspot.com **March 2019 - April 2019**
- Designed a Website and Android App for E-commerce through eBay APIs [Angular – frontend, Node.js - backend]
- Incorporated features like filtered search, auto-completion, animations, Google's custom search, Facebook sharing.

Computation service using gRPC **February 2019 – March 2019**
- Engineered a Computation service having inter-service communication through gRPC Streaming APIs such as Server, Client, Bidirectional and leveraged features like Interceptors, Error codes, SSL Security, Reflections and Deadlines.

Car Routing using Reinforcement learning **October 2018 – November 2018**
- Implemented a Routing algorithm using Markov Decision processes - Value and Policy iteration that predicted obstacle collisions by up to 87% accuracy.

Text Classification using integrated Convolutional and Recurrent Neural Networks **December 2017 - April 2018**
- Authored a thesis on designing an efficient DNN to integrate Convolutional neural networks and Gated Recurrent Units which surpassed the precision of existing DNN by 7% for classifying text documents.
- Raised DNN's accuracy by 5% through developing a new activation function - *Inverse Exponential Linear Unit*.

AWARDS

- **University Topper** (10000+ students) - **Merit Certificate** (Aug 2015) | **Award Certificate & Gold Medal** (Apr 2018)
- **College Topper** (3000+ students) - Mar 2016 - **MIT Silver Jubilee Scholarship** | **Sri Kamakoti Scholarship**