# SRIDHAR RAMASAMY

## OBJECTIVE

Self-motivated graduate student seeking a challenging position to utilize my software development skills to analyze large sets of structured/unstructured data and apply principles of math/statistics to extract and visualize the information.

## TECHNICAL SKILLS

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| **Programming language:** | Java (Java-XML - DOM,log4j), Python (Pandas, NumPy, SciPy, Scikitlearn), C/C++(GMP), SQL, JavaScript, Octave, MATLAB |
| **Operating platform:** | Linux(Debian, Fedora) & Windows(7,8,10) |
| **Software tools:** | Hadoop, Pig \| MySQL \| MongoDB(PyMongo) \| Git \| Latex \| Eclipse IDE |

## EDUCATION

**Master of Science** Electrical & Computer Engineering Aug 2016
Colorado State University, USA GPA: 3.50/4.00
Coursework: Machine Learning, Data Warehousing for Business Intelligence (current), Data Manipulation at Scale: Systems and Algorithms, Applications of Random Processes, MongoDB for Developers, Big Data, Internet Engineering, Computer Security, Computer Architecture, Linear Algebra.

**Bachelor of Engineering** Electrical & Electronics Engineering Jun 2013
Anna University, India GPA:9.02/10.0
Coursework: Operating Systems, Object Oriented Programming, Data Structures and Algorithms, Microprocessor and Microcontroller, Communication Engineering, Digital Logic Circuits, Linear Integrated Circuits and Applications.

## WORK EXPERIENCE

**Grad. Student Researcher** **Computer Networking Research Lab, CSU** Feb 2015 - Current
**Graph Analytics and topology studies on real world networks**

- Created 2D & 3D benchmark physical networks to study topology. Generate topology map with virtual coordinates (VC) using SVD. VC obtained with Extreme Node Search (ENS) Anchors.
- Spatial/Graph Analytics on incomplete real world internet & social network datasets (Facebook, Collaboration, Enron E-mail). Network size varies from 744 nodes to 4158 nodes.
- Use principles of low-rank matrix completion to capture the topology of incomplete graph.
- Research has led to publication in IEEE conference and other forthcoming conferences.

**Software Programmer** **Fromme Custom Solutions Inc, Fort Collins, CO** Aug 2015 – Oct 2015

- Developed a software application to test storage network for SMI specification with TLS protocol version and cipher. Application was created in Java with DOM parser and log4j libraries.
- Designed a custom defined XML file to specify the combinations of TLS version & cipher suites.
- Implemented a Java program that read specifications from XML file to process the reply from the storage network server.

**Grad. Teaching Assistant** **Colorado State University, ECE department** Aug 2015 – Dec 2015

- Teach digital logic circuit lab for a class of 120 students. Proctor and grade exams.
- Quartus II software was used to design the circuits and were tested on Altera DE II boards.

## PUBLICATIONS

- A Low Complexity Technique for Capture and Characterization of Social Network Topology - Sridhar Ramasamy, R. Paffenroth, A.P. Jayasumana (to be submitted)
- Topology Maps and Distance Free Localization from Partial Virtual Coordinates for IoT, IEEE Communications Conference 2016 - A.P. Jayasumana, R. Paffenroth, Sridhar Ramasamy

## PROJECTS

**Blog Creation with NoSQL database and Bottle Framework** Apr 2016

- Create Schema for storing articles, comments, username, and password in MongoDB. Pymongo is used to access MongoDB.
- Bottle framework and templates are used for presenting it on web. Text based indexes were created to search based on tags.

**Twitter Sentiment Analysis** Mar 2016

- Used Python and OAuth library to get a sample set of tweets. Map reduce is used for processing.
- Calculate the sentiment score for each tweet by comparing the individual words with the pre-computed sentiment scores. Tweets in English language alone are considered.
- Derive sentiment for new words using score of the tweet. Find frequency of each word, happiest state & top ten hash tags. The user field is used to get the "state" of the user.

**Training Support Vector Machine for Spam E-Mail Classification** Jan 2016

- Pre-processing of e-mails and word stemming is done. Words occurring more than 100 times are considered.
- Features from email are extracted into a vector. The SVM is trained and gets a 99.8% training accuracy and 98.5% test accuracy.

**Anomaly Detection and Recommender Systems** Dec 2015

- Implement Gaussian distribution to detect anomalous behavior of server. F1 score is used to choose best threshold value.
- Collaborative filtering learning algorithm is applied to predict the movie ratings. Used Octave programming language.

**Recognition of Handwritten digits(0-9) using Logistic Regression & Neural networks** Nov 2015

- Implemented a basic one-vs-all classifier with multiple regularized logistic regression classifiers.
- Implemented a Neural network scheme that uses back propagation to learn the parameters and use feedforward propagation to predict the digits. Computed the performance by measuring accuracy for both models. Octave was used for implementation.

**Estimating PageRank Values of Wikipedia Articles using MapReduce** Oct 2015

- Implement page rank algorithm to rank the internal Wikipedia articles with Wiki data dump.
- Analyze the estimated the page rank values under ideal condition as well as for dead-end articles.
- Used Java map reduce and Hadoop framework for this.

**Simulation of Network Interface Card (NIC) with offload capability** May 2014

- Implementation involves message & packet Buffers. Message arrival rate is defined by Poisson process. Java programming language was used.
- Calculate throughput, efficiency and packet drop rate for each preset buffer size.

**Content Searching in a Distributed Application layer Network – Structured & Unstructured** Apr 2014

- Implemented Unstructured and Structured (Chord Algorithm) P2P network and simulated on 80 nodes. Java is used for implementation of both structured and unstructured network.
- Structured network construction and file searching based on TCP protocol. Unstructured network uses UDP as Transfer Unit.
- Computed Std. Deviation of finger table size & per query cost in terms of latency, hops for structured network.
- Computed Std. Deviation of node degree, packets, latency, hops for all the nodes and plotted CDF for unstructured network.

**Undergraduate Project - "Intelligent home automation system – Non-conventional"** May 2013

- Bluetooth controlled central microcontroller & Utility microcontrollers connected through RFId.
- Sensors to relay information from surrounding environment & solar charged battery powers up the appliances.