

Ravi Kiran Selvam

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EDUCATION

M.S in Applied Data Science

University of Southern California - Viterbi School of Engineering

May 2021*

B.E. in Computer Science (Among top 5% out of 180 students)

Anna University - CEG Campus

CGPA- 9.47/10

April 2019

SKILLS

Operating Systems: Linux, macOS, Windows

Languages: C, C++, Python (Proficient); Java (Intermediate);

Database and Client/Server Technologies: MySQL, MongoDB, Snowflake, Azure Data lake, Flask, Bootstrap, JavaScript, Firebase

Software Tools: Git, Android Studio, Anaconda

ML Frameworks: Tensorflow, Keras, scikit-learn

OPEN SOURCE CONTRIBUTIONS

Google Summer of Code 2018 Student Developer, CERN

April 2018 - August 2018

- Provided support for advanced deep learning optimizers in the open-sourced **ROOT-TMVA, a data analysis software framework** by CERN
- [Implemented deep learning optimization algorithms](#) (SGD, RMSProp, Adam, Adagrad, etc.) by exploiting the parallel programming capabilities using C++ and low-level libraries (Blas, CUDA and CuBlas in CPU & GPU architecture); my code has been successfully integrated into the [new production release of ROOT version 6.16](#)
- Tech stack: **C++, Blas, CUDA, CuBlas**

EXPERIENCE

Graduate Research Assistant, Information Sciences Institute, USC

October 2019 - Present

- Working at the **Center on Knowledge Graphs Lab** under the mentorship of Prof. Mayank Kejriwal.
- Our project is focussed on creating better and improved neural representations of text data by incorporating domain knowledge with word embeddings and constructing knowledge graphs to solve some of the most interesting NLP problems in the e-commerce domain funded by Yahoo Research!

Data Science Intern, Motorq

December 2018 - June 2019

- Set up the **initial Data Science workflow** and infrastructure for building ML models
- Analyzed **large-scale connected car data** from IoT devices and solved problems such as refueling event detection, idling time detecting, trip completion event detection
- Designed and Implemented **various engine hour metrics, meta-metrics** for different parameters of car data and analyzed the trends across time and build the **battery voltage failure prediction model**
- Tech stack: **Python, numpy, pandas, matplotlib, plotly, scikit-learn, TensorFlow, snowflake, Azure Data lake, Azure VM**

Machine Learning Intern, Kenome Technologies

May 2018 - June 2018

- Built a deep learning model to perform **sequence tagging** for colors, materials, and patterns in text documents
- Built a method for data-annotation by reducing the time complexity of string matching from naive algorithm using a modified version of Trie data structure. Observed a maximum F1 score of 0.94 for tagging colors and materials in the testing data set
- Built a dashboard to **visualize the crypto-currency prediction model** using Plotly and d3 libraries
- Tech stack: **Python, TensorFlow, Keras, AWS EC2, plotly, d3**

Software Development Engineer Intern, Amazon

May 2017- July 2017

- Developed prototype features for **Amazon-Fire TV Stick** to integrate marketing notifications using Amazon's internal library
- Created a prototype to integrate IMDB ratings with Amazon Prime videos, where the user's rating for a particular video will get accumulated to the IMDB rating
- Tech: **Java, XML, Software testing, Software design principles**

PROJECTS

DocDroid Application for Medical Emergency

December 2017 - January 2018

- Developed an android application to facilitate people during medical emergencies
- Built server-side using Flask framework; enabled automatic booking of ambulance & allocation of nearest hospital with an adequate facility to patients with a single tap
- Sent notification to patient's emergency contacts to live track the ambulance
- Technologies: **Python, Flask, Java, XML, Firebase, scikit-learn**

Online Assessment System

August 2017 - October 2017

- Created a web application for college students to attend online assessments
- Developed a user-friendly UI to enable faculty to create online tests for students; Automatically scored objectives and descriptive answers by matching key answers given by faculty
- Technologies: **Python, Flask, Bootstrap, Javascript, HTML, JQuery**

Alpha Math Tools

September 2015 - November 2015

- Developed an android application to solve basic mathematical problems
- Incorporated options to calculate interest for automobile/home loans and solve linear/quadratic equations for students; [Available on Play Store](#) with 4.9 rating and 100+ downloads
- Technologies: **Java, XML**

AWARDS

- Ranked 35th among 250 teams (Amritapuri Regionals) and 30th among 120 teams (Chennai Regionals) **across India** in ACM International Collegiate Programming Contest, **December 2017**
- Won 25 coding (algorithmic) competitions in 12 inter-college tech fests (by securing 1st among ~400 participants), **October 2016 - March 2019**

RESEARCH EXPERIENCE

Power Graph for Citation Network

August 2017 - November 2017

- Developed a new data structure (**in C++**) by modifying power graph to represent relationships between author and co-author in a citation network dataset.
- Deduced algorithms to perform queries like finding the bonding value between authors (to find the type of citation between papers) and a similarity index between research papers.

RESEARCH PAPERS PENDING PUBLICATION

- Mahalakshmi G.S*, Makesh Narsimhan Sreedhar*, **Ravi Kiran Selvam***, Sendhilkumar S: ***Exploiting Bi-LSTMs for Named Entity Recognition in Indian Culinary Science***; In proceedings of the 4th international conference on Next Generation Computing Technologies, NGCT 2018; In Communications in Computer and Information Science Series of Springer Journal. (accepted and presented)

CERTIFICATIONS

- Deep Learning Specialization (series of 5 courses) by Deeplearning.ai, Coursera, **March 2018**
- Machine Learning by Stanford University, Coursera, **December 2017**
- Codechef Certified Data Structures and Algorithms Program (CCDSAP) - Advanced Level, CodeChef, **November 2017**

EXTRA-CURRICULAR ACTIVITIES

- **Founder, CEG Codechef Campus Chapter** - Delivered lectures on competitive programming to many college students and trained them to participate in the ACM-ICPC, **September 2018 - March 2019**
- **Problem Setter, Abacus'17 & Abacus'18**, departmental inter-collegiate national-level technical symposium- Organized 5 intercollegiate onsite & online programming contests (HackerRank, CodeChef), Anna University, **March 2017 & March 2018**
- **Volunteer, CEG Linux Users group (CEGLUG)** - Delivered lectures on open source tools to many college students to create awareness about the same, **September 2017 - March 2019**
- **Authored 2 blogs** for beginners on Algorithms and Data Structures with ~10,000 page views, (Link1, Link 2), **March 2016 - May 2017**

LANGUAGES: English, Tamil (Read/Write/Speak)