

# Madhusudhan (Madhu) Aithal Mahabhaleshwara

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## EDUCATION

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### University of Colorado Boulder

Boulder, CO

*Master of Science in Computer Science; CGPA: 4/4*

*May 2021*

- *Worked with Prof. Chenhao Tan on style transfer in text.*

*Graduate Teaching Assistant for CSCI 1300 - CS1: Starting Computing course*

### R V College of Engineering

Bangalore, India

- *Bachelor of Engineering in Computer Science and Engineering; CGPA: 9.45/10.0*

*May 2017*

## RELEVANT COURSEWORK

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- **University of Colorado Boulder:** Graduate Algorithms, Graduate ML, NLP, Datacenter Scale Computing, Object-oriented Analysis & Design, Neural Networks & Deep Learning, Big-data Analytics.
- **R V College of Engineering:** Data Structures, Algorithms, Software Engineering, Introduction to Machine Learning, Engineering Maths, Operating System, Computer Networks I & II, DBMS, System Software and Compiler Design.

## TECHNICAL SKILLS

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- **Languages:** Java, Python, C++, JavaScript, C, HTML, CSS.
- **Frameworks:** Node.js, Angular, Spring Boot, Flask, Fundamentals of Hadoop & Spark.
- **Databases:** MongoDB, Elasticsearch, MySQL, Cassandra, Neo4J.
- **Others:** ELK stack, Kubernetes, Docker, Google Cloud Platform, REST, gRPC, Kafka, RabbitMQ, Electron.js, D3.js, Websockets, Prometheus, Grafana, PyTorch.

## EXPERIENCE

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- **Aruba Networks** Santa Clara, CA  
*Software Engineer Intern* *May 2020 - Aug 2020*
  - **Distributed Logging - Switching Platform:** Developed & orchestrated a pull-based logging service (Python via containers) and pipeline (ELK) to collect & transform logs of all microservices to ES. (ELK, Flask, Kubernetes)
- **Infosys (Expert Track)** Bangalore, India  
*Specialist Programmer* *July 2017 - July 2019*
  - Enhanced a Python module to translate natural language queries into CQL (Cypher Query Language) queries, **improving its accuracy by 22%**, using NLP techniques. (Python, Rasa, Flask)
  - Led the end-to-end development and deployment of an organization visualization app that provided a **holistic view & actionable insights** for leaders to **enhance the performance of multiple teams**. (Published in **ACM IUI 2018**. *Link*) (Node.js, MongoDB, JS, D3.js)
  - Single-handedly implemented an Angular library based on Sunbird telemetry specification (*link*), for capturing telemetry data in web apps. **Used by more than 5 applications of Infosys**. (Angular, JS)
  - Orchestrated and maintained complex coexisting systems over a **cloud infrastructure** with Docker Swarm, by containerizing individual applications & tools. Developed **monitoring & alerting system** with Prometheus & Grafana. (Docker, Docker Swarm, Shell scripting)
- **Infosys (Expert Track)** Bangalore, India  
*Intern* *Jan 2017 - Jun 2017*
  - Modeled and developed **knowledge graph** for an internal Question-Answering platform at Infosys that **helped in matching users** who could potentially answer questions posted. (Neo4J, Spring boot)
  - Analyzed connectivity structure of organizational data using community detection & **network science** metrics, helping business leaders in **better management of teams**. (Java, Neo4J, JS)
- **Mathologic Technologies** Bangalore, India  
*Intern* *Jun 2015 - July 2015*
  - Designed & implemented heuristics for a Decision support system to automate crew assignments for trains, **improving 28% in crew performance & saving 22% crews** for Indian Railways. (Java, MySQL)

## ACADEMIC PROJECTS

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- **ScanIt (*code*)**: App to scan handwritten text documents and search by keywords through Elasticsearch. Also provided grammatical suggestions using Grammarbot API. (Python, React.js, GCP, ES, Kafka)
- **Clipboard synchronization app (*code*)**: Solution for copying clipboard texts from one device to all other devices of users. (Node.js, MongoDB, GCP, Electron.js, Keycloak, Android)
- **Negation in negative reviews (*code*)**: Performed lexical analysis of various datasets to study usage of positive lexicons and negations in negative reviews. (PyTorch, Spacy)
- **Style transfer on Tweets (*code*)**: Implemented and tuned Cross-alignment style transfer model using twitter data, to translate input tweet to better worded tweet with same content. (PyTorch, Spacy)
- **Event sequence prediction (*code*)**: Implemented LSTM based model for event sequence prediction on Twitter and Hawkes data. Analyzed its performance (NLL Loss) in comparison with the Neural Hawkes model. (PyTorch)
- **non-normal RNN (*code*)**: Performed hyperparameter explorations and ablation studies of nnRNNs. Implemented Adding task for measuring performance of nnRNNs against other RNN architectures. (PyTorch)
- **One pass macroprocessor for 8086 (*code*)**: Implemented one pass macroprocessor using lex and yacc. It replaced MACROS (including nested MACROS) and constants with corresponding groups of statements in single pass.

## AWARDS

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- **STG Makeathon edition 4 - 1st place (2019) (*code*)**: Developed e2e horse-race betting app (based on a client problem statement) for users to place bets through kiosks, and view their historical bets. (Spring boot, MongoDB, Angular 7, Electron.js, Docker)
- **STG Makeathon edition 2 - 2nd place (2018)(*code*)**: Developed an app to identify defective crops and suggest possible remedies, along with agro-based news feed. (Angular 7, Spring boot, MongoDB, Android, Docker)

## PUBLICATIONS

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- Gopalakrishnan, Gopakumar, **Aithal, Madhusudhan M.**, & Pasala, Anjaneyulu (2018). Visual Analytics of Organizational Performance Network. Proceedings of the 23rd International Conference on Intelligent User Interfaces Companion. (*link*)

## CERTIFICATIONS

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- Deep Learning Specialization by Coursera (deeplearning.ai), August 2018 (*link*).