Madhavan **R.P**

(+1) 515-735-8977 | mdhvnrp@gmail.com | madhavanrp.github.io/ | github.com/madhavanrp | madhavanrp

Education

Iowa State University — *Ames, Iowa*
PH.D - COMPUTER SCIENCE — *June 2021 (expected)*
GPA 3.83/4.00

M.N.M Jain Engineering College — *Chennai, India*
BACHELOR OF ENGINEERING - COMPUTER SCIENCE AND ENGINEERING — *May 2011*

Experience

Iowa State University — *Ames, Iowa*
GRADUATE RESEARCHER — *July. 2017-present*

- Researching novel problems on how to maximally spread information in large social networks.
- Created an efficient probabilistic algorithm to spread information to targeted users while avoiding adversaries - Constrained Influence Maximization (CIM) problem
- Designed an algorithm that improved the information spread by 12% while running almost 100 times faster than the existing state of the art solution.
- Programmed the algorithms in C++ to achieve high practical performance on graphs with millions of edges.
- Efficiently used data structures to store the graphs allowing for blazing fast implementations of graph traversal algorithms.

NP Compete Technologies — *Chennai, India*
TECHNICAL STAFF MEMBER — *Oct. 2011-Sept. 2014*

- Developed an Android SDK that enabled businesses to detect user actions and make dynamic UI changes to their existing mobile applications in real-time.
- Leveraged Aspect Oriented Programming to log user actions, modify UI elements allowing for A/B testing in live mobile applications.
- Designed and implemented a comprehensive testing strategy by writing module-level JUnit tests and defining product-level use case scenarios.
- Defined and created a novel Contact Management application that enabled users to easily access and manage their contacts across various social networks and platforms.
- Implemented a Flask web application to collect user's contact information via OAuth and store it in user's Dropbox.
- Implemented a tool in python that processed and categorized emails using Naive Bayes Classification.

Relevant Coursework

Iowa State University — *Ames, Iowa*
MACHINE LEARNING, OPTIMIZATION FOR MACHINE LEARNING, ARTIFICIAL INTELLIGENCE

- Learned fundamental machine learning algorithms - Gradient Descent, Support Vector Machines, Linear Regression. Applied techiques on classification problems using Keras, Scikit-learn.
- Performed theoretical analysis on First-Order Methods - Gradient descent, Stochastic gradient descent.
- Designed and implemented several AI agents by employing classic techniques such as A* search algorithm, Alpha-beta pruning.

Skills

Languages/Tools Java, Python, C++, C, Git, UNIX Shell
Areas of Proficiency Graph-Based & Randomized Algorithms, Data Structures, Machine Learning/AI

Publications and Awards

2018 **IEEE BigData,** "Influence Maximization in Social Networks With Non-Target Constraints" (18.9% acceptance) *Seattle, U.S.A*
2018 **Atanasoff Award Winner,** In recognition of Academic, Research performance (1 of 193 graduate students) *Ames, U.S.A*