Ramaswamy Iyappan

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SUMMARY

Graduate Student majoring in Computer Science with a background of Data Science, seeking internship opportunities to gain a real-world hands-on experience of applying different Machine Learning concepts.

- Continuous Self-learning to update and refresh knowledge by listening to motivational and informative lectures.
- Interested in learning new technologies and computer languages.
- Keen on applying learned concepts in real life to gain real world experience.

EDUCATION

M.S. Computer Science — *Visa Status: F1 - OPT*
George Mason University, Virginia — *Expected Graduation: May 2024*
B.E. Computer Science Engineering — CGPA: 7.52/10
Vels University, Chennai. — *2020*

TECHNICAL SKILLS

- Document and Database Tools: MS Office (MS Word, MS Excel, MS PowerPoint), and MySQL.
- Programming Languages: C, C++, JAVA, Python, and MATLAB.
- Web Development: HTML, CSS, JavaScript.

COURSE WORK

- Mathematics: Mathematical Foundations of CS, Differential Calculus, Linear Algebra, Statistics and Probability.
- Computer Science: Fundamentals of Systems Programming, Data Mining, Machine Learning, Analysis of Algorithms, Object Oriented Programming, Data Structures, MySQL, and World Wide Web Development.

PROJECT WORK

Machine Learning — *Feb 2022 – Apr 2022*

Logistic Regression using Gradient Descent: — ***Accuracy: 86%***

- Objective: To predict whether a patient has heart disease using a Logistic Regression model on 'Cleveland' dataset.
- Implemented **Logistic Regression Gradient Descent** algorithm from scratch, compared results with **Sci-kit Learn classifier**.
- Scaled all features and applied a range of values to find an optimal trade-off between iterations and learning rate, which improved the accuracy by **2%** and almost matched performance when using Sklearn's package.
- Learnings: Clearly understood **Overfitting, Complex model, Explainable model,** and **Bias-Variance** Trade off concept.
- Application: This model can be used by health care providers to detect & diagnose patients before serious impact.

K-Means Clustering: — ***Accuracy: Iris-72%, Image-78%***

- Objective: To predict the type of flower species on Iris dataset and predict handwritten digits 0-9 from pixel format.
- Implemented **K-Means Clustering** from scratch, used 100 iterations for moving the centroids with a stopping condition.
- Applied **PCA** to reduce dimensions of Image data from 784 to 280 features, that best explains maximum variance in the dataset. Constructed **elbow plot** for both Iris & Image data to find optimal number of clusters. Increased number of clusters for Image data which made better results, since model's performance was just 51% with 10 clusters.
- Learnings: Clearly understood **Dimensionality Reduction, Feature** & optimal **parameters selection.**
- Application: This model can be used to detect handwritten digits, words, and individual alphabets in documents & devices.

AdaBoost: — ***Accuracy: 89%***

- Objective: To recognize handwritten digits, specializing in distinguishing between the digits 3 & 5.
- Implemented the **AdaBoost** algorithm with a Gini-Index based method, learned using **decision stumps** as weak classifiers from scratch, compared results with **Single Decision tree classifier.**
- Observed that the Adaboost model performed better than the Single Decision tree classifier and does not overfit.
- Learnings: Clearly understood **weak classifiers, Overfitting, Decision tree,** and **Boosting** technique.
- Application: This model can be effectively used in distinguishing handwritten digits.

C and SQL — *Apr 2022 – May 2022*

- Designed a Billing system using **C** and **MySQL API** with Admin, Search, Cart, and billing consoles.

WORK & EXPERIENCE

- **Customer Service Assistant** [Part-time] — *Jun 2022 – Present*
  Mason Recreation, George Mason University
- **Piano & Music Instructor** — *2017 – Present*
- Experience with advertising tools and analytics in social media platforms, helped in promoting movies, products, etc.