

Ramaswamy Iyappan

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EDUCATION

- **George Mason University** Fairfax, VA
Masters in Computer Science; GPA: 3.61 *Expected - Dec 2023*
- **Vels University** Chennai, India
Bachelor of Computer Science *2016 - 2020*

SKILLS

- **Programming:** C, Java, Python/PyTorch, MySQL, JSON
- **Web Development:** HTML/CSS, JavaScript/TypeScript, Angular, jQuery, AJAX
- **Tools:** MS Office, Visual Studio Code, GIT, Springboot, Jupyter Notebook, Matlab

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

ACADEMIC PROJECTS

- **Machine Learning**
 - **Credit Card Fraud (Anomaly Detection):**
Implemented a Machine Learning approach to identify fraudulent transactions by observing results (Precision-Recall) from ensemble learning models such as Random Forest (Bagging), XG Boost (Boosting), Voting Classifier and Multi-layer Perceptron (ANN). Solved Class-imbalance problem by exploring applications of Under-sampling and Over-sampling techniques. (Dec '22)
 - **Digits Classification (Deep Learning):**
Implemented a Feed-forward Artificial Neural Network using PyTorch framework that utilizes Stochastic (mini-batch) Gradient Descent to classify hand-written digits 2 and 9. Understood different activation functions (Sigmoid, ReLu, Tanh), mini-batch training, and hidden-layer settings. (Nov '22)
 - **Spam Classifier (Generative Model):**
Developed a Naive Bayes classifier from scratch to identify Spam emails using Multinomial event model and Laplace Smoothing. (Oct '22)
 - **Hand-written digits Prediction (Unsupervised Learning):**
Implemented K-Means Clustering from scratch to classify hand-written digits 0-9 by finding optimal number of clusters using elbow-plot, and applied PCA to reduce input dimensions from 784 to 280. Clearly understood Dimensionality Reduction, Feature and optimal parameters selection. (Apr '22)
 - **Heart-Disease Prediction (Supervised Learning):**
Developed a Logistic Regression model using Gradient Descent from scratch for detecting heart-disease in patients and compared results with Sci-kit Learn classifier. Found optimal trade-off between parameters which improved accuracy. Understood Over-fitting, Complex model, and Bias-Variance Trade off concepts. (Feb '22)
- **Web Development**
 - **Feedback Survey Form:**
Designed an interactive survey form with Angular, TypeScript, and RESTful Web services in Spring Boot for prospective students to provide feedback on their campus tour. Clearly understood usage of Cookies, Angular components, data storage/retrieval, RESTful calls, and Type-scripting for Angular. (Nov '22)
- **C and SQL**
 - **Supermarket Billing System:**
Designed a Billing system for Supermarket using C and MySQL API with Admin, Search, Cart, and billing consoles. (Apr '22)

EXTRA-CURRICULAR

- Working as a part-time Customer Service Assistant at Mason Recreation GMU, since June 2022.
- Passionate Piano and Music Instructor for more than 5 years since 2017.
- Part of National Cadet Corps (Student military) and was awarded for clearing Rifle rounds and camps. (2013, India)
- Continuous Self-learning to update and refresh knowledge by constructing solutions from scratch.
- Dedicated to understanding new technology and solving challenges in the real world by applying concepts practically.