Raven Mott

Atlanta, Ga| 786-303-4811 | Mottravenbusiness@gmail.com
LinkedIn: https://www.linkedin.com/in/raven1202 | GitHub: https://github.com/Rmot1202

Education:

Virginia State University | Bachelor of Science | Computer Science | Expected graduation: Spring 2026 | Petersburg, VA | Cumulative GPA: 3.7 | EST University STEM Scholarship | Honors Student | Undergraduate Researcher

Technical Skills:

Programming: Java, R, Python, C++ | Database: SQL | Web Development: HTML, CSS, JavaScript, Bootstrap, Flask
Machine Learning: SVM, Logistic Regression, Decision Tree, K-means Clustering | Data Visualization: Tableau

Research

Virginia State University Nuclear Science Lab

Support Vector Machine (SVM) for Neutron Event Classification (Real Data) Jan–May 2024(140hrs)

- Developed and optimized an SVM model using real scintillator detector data from the MAME project.
- Achieved ~95% accuracy, with the linear kernel performing best in comparison to other kernels.
- Fine-tuned hyperparameters, maximizing F1-score (0.93) and AUC (0.96).

K-means Clustering for Neutron Data Analysis (Simulated Data) Aug 2024-Present(70hrs)

- Applied K-means clustering to simulated neutron data, improving detection accuracy by 15%.
- Optimized cluster separability using Elbow Method & Silhouette Score (k = 3, Score: 0.78).
- Visualized clustering results to refine neutron classification.

Work Experience

Data Science for the Public Good. Summer 2024

Faculty Collaboration Dashboard

- Developed an interactive Shiny dashboard in R to visualize faculty collaboration networks.
- Utilized iGraph for network analysis, Tidyverse for data manipulation, and ggplot2 for visualization.
- Analyzed centrality, community detection, and collaboration patterns to identify interdisciplinary links and funding opportunities.

Urban Heat Island Analysis

- Conducted a spatial analysis of heat distribution in Petersburg, VA, examining the impact of tree cover, building density, and socioeconomic factors.
- Processed data from satellite imagery, census surveys, and PurpleAir sensors using R.
- Identified a negative correlation ($R^2 = 0.60$) between tree cover and temperature, helping prioritize air monitor placements.
- Delivered actionable recommendations for urban planning and climate mitigation strategies.

Personal Project

AI-Powered Food Navigation Web App (rmot1202.pythonanywhere.com). (20hrs)

- Developed a Flask-based web application with an AI chatbot using OpenAI's GPT-3.5 Turbo.
- Implemented a contact form with SQLAlchemy to store user submissions in an SQLite database.
- Designed a dynamic menu and navigation system using HTML, Flask, and Jinja templates.

Leadership/Activities/Extracurriculars

VSU Tour Guide – Led 50+ campus tours for groups of 4 to 100 people, enhancing prospective student engagement and university outreach.

Apple Pathways (2024) – Completed workshops on resume building, professionalism, advanced algorithms, and software development methodologies.

DEA Mentorship Program (2023) – Developed workplace professionalism, ethical judgment, leadership, and collaboration skills in a technical environment.