Ryan Samarakoon

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Education

Vanderbilt University Aug. 2022 – May 2024
Master of Science in Computer Science
- Relevant Courses: Computer Networks, Digital Forensics, Machine Learning, Quantum Computing.

University of Cincinnati Sep. 2012 – May 2016
Bachelor of Science in Neuroscience

Projects

Credit Card Fraud Detection using ROC Threshold | *Python, Pandas, Sklearn* Oct. 2022
- Used a credit card fraud detection dataset to show how determining a probability threshold from an ROC curve can be useful for unbalanced datasets in binary classification problems.
- https://github.com/samarakoon-ryan/creditcard-fraud-detection

Grover's Algorithm Implementation | *Python, Qiskit* Sep. 2022
- Implemented a 2 qubit example of Grover's algorithm and ran it on IBM's real quantum devices through IBMQ.
- https://github.com/samarakoon-ryan/Grovers-Algorithm

Modeling of NASA's Nearest Earth Objects | *Python, Pandas, Sklearn* Aug. 2022
- Built and compared the performance metrics between three machine learning models (logistic regression, support vector machines, and k-nearest neighbors) to determine which model best predicts asteroids that are hazardous to Earth.
- github.com/samarakoon-ryan/NASA-nearest-earth-objects-modeling

Experience

Research Data Associate May 2018 – Aug. 2022
Stanford University *Stanford, CA*
- Performed feature engineering on 10+ years of highly dimensional retinal electrophysiological data to investigate and model the variability of retinal signaling in human and primate retinas.
- Analyzed electrical stimulus data to determine the ideal amplitude and interval needed to elicit a spike in live tissue experiments.

Research Associate Sep. 2016 – May 2018
The Gladstone Institutes - UCSF *San Francisco, CA*
- Analyzed RNA-seq data using dimensional reduction techniques such as PCA and t-SNE using packages in R.
- Performed DNA/RNA extractions, gene editing, and other molecular and cell biology techniques for stem cell culture experiments.

Publications

- Shah NP, Brackbill N, **Samarakoon R**,... Individual variability of neural computations in the primate retina. Neuron. 2022 Feb 16;110(4):698-708.
- Gifford CA, Ranade SS, **Samarakoon R**,... Oligogenic inheritance of a human heart disease involving a genetic modifier. Science. 2019 May 31;364(6443):865-870.

Technical Skills

Languages: Python, HTML/CSS, JavaScript, SQL, C++
Frameworks: Django, Node.js
Developer Tools: Linux, Git/Github, Jupyter Notebooks, VS Code, Heroku
Libraries: NumPy, Matplotlib, Pandas, PyTorch, Qiskit, Scikit-learn