APOORVA RASTOGI

Email: arasto17@asu.edu || Contact No: +1 (480) 743-2868 || LinkedIn: apoorva-rastogi-29asu2023

EDUCATION

Master of Science in Computer Science
Arizona State University, Tempe — MAY 2023 — *CGPA (4/4)*

Courses In Progress - Data Mining, Statistical Machine Learning, Statistical learning Theory

Bachelor of Technology, Electronics & Communication Engineering
Shiv Nadar University, Greater Noida — JULY 2020 — *CGPA (8.2/10)*

- Received position in Dean's List for Academic Excellence in Third Semester at Shiv Nadar University, Greater Noida (2017)

COURSE PROJECTS

Spatial Queries and Geospatial Database — Nov 2021

- A taxi cab firm has large database that contains geographic data as well as real-time location data of their customers. The goal of the project is to extract data from this database that will be used for operational (day-to-day) and strategic level (long term) decisions. Since the database is large and mostly unstructured it is not possible to deal with it using traditional database so we use a Big Data software application, SparkSQL and implement the work in Scala.
- Spatial queries differ from traditional SQL queries as they allow for the use of point, lines, and polygons. Worked on many queries including hot spot analysis to find out the cell which has the highest activity using Getis-Ord Statistic. Further, Spatial analysis can be used Detect and Quantify Patterns, Understand and Describe Locations and Events, Make Predictions, etc.

BinExploit, BinReverse and WebExploit - Software Security — Oct 2021 - Nov 2021

- The aim was to exploit various binaries and websites provided. For this various concepts suck as stack, command line injection, disassembling, overflows, shell code, SQL Injection, Cookies, Hidden Form Field etc. were studied and exploited. Learned and used reverse engineering tool such as Ghidhra to parse ELF file
- Successfully leveraged tcpdump and wire-shark to catch and replay exploits during CTF's.

Graph learning — Jan 2020 – May 2020

- Aim: There are many networks such as brain signals for which it is crucially important to extract a graph topology from the available data that describes the characteristics of data and thus the underlying information. Used different real and artificial data sets and implemented two algorithms namely Graphical Lasso and GL-Log Det to build graphs.
- Graph's properties such as neighboring vertices and similarity measures were then calculated to evaluate the algorithms. Final Model was applied on two real world datasets. One was motor/imagery tasks while 64-channel EEG were recorded. Another was database consists of EEG recordings from pediatric subjects with intractable seizures. We analyzed liberal organization of brain activity in the context of an attention switching task and change during seizure.

Credit card fraud detection — Aug 2019 – Nov 2019

- Aim: The aim was to develop a ML model which could correctly classify credit card transactions as genuine or fraud.
- Machine Learning can learn from the previous transactions and classify data based on its features. In fraud detection cases the main problem faced is that of highly skewed dataset. Only 1 % cases were fraud, rest all genuine.
- Implemented two approaches namely thresholding and under-sampling to process the data as it was skewed. Algorithms namely Naïve Bayes, Decision Trees, SVM were compared, wherein each one had its parameters which could be adjusted to obtain the best performance; the performance of different algorithm was compared through confusion matrix, ROC and AUC.

INTERNSHIPS

Associate Intern
Encore advantage, Gurgaon — July 2020 – Feb 2021

- Integration of Marketing cloud with AWS, other system application through MuleSoft APIs to transfer data optimally.
- Created application on MuleSoft to transfer and transform data picked from various sources including SFTP, S3, Postgres Database to perform analysis and extraction on input files.
- Successfully performed web tracking, link tracking, Email tracking through Salesforce Marketing cloud
- Successfully able to call protected API though Automation Studio in Marketing cloud

TECHNICAL SKILLS

- **Programming** : MATLAB, C, C++, Python, Arduino, Raspberry Pi, HTML, SQL
- **Software Package** : Mulesoft, Github, AWS Workspace, Apache Spark, Sci-kit learn, Keras, Tensorflow
- **Tools/Technologies** : Postman, Eclipse, Anaconda, Spyder, Postgres, Jupyter, SPIM, Ghidhra

TRAINING AND CERTIFICATIONS

- Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning through Coursera (2022)
- Completed a course in Neural Networks and Deep Learning through Coursera authorized by deeplearning.ai (2020)