SAMIN SEMSAR

PhD Student in Information Systems

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EXPERIENCE

Graduate Research Assistant | Information Systems

University of Maryland, Baltimore County

Since May 2022

- Using Kernel Density Estimation (KDE) in python to demonstrate the bias caused by feedback loops in a simulated predictive policing system
- Choosing relevant datasets based on required features, including 911-calls dataset and neighborhood dataset from open Baltimore city datasets
- Simulating the dispatching of police-officers to hot spots based on previous month 911-calls crime-report locations
- Plotting Geo-location data using folium, Geojsoncontour and matplotlib.pyplot libraries to visualize the police concentration in one area after month 12 and hotness of the location based on KDE
- Mentoring two undergraduate research assistants

Since September 2021

- Co-designed a fundamental exploratory user study to understand software engineers' challenges in implementing regulations
- Redesign and reverse engineering of a web-based tool for modeling ambiguities in regulation text using JavaScript
- Recruiting participants including software practitioners
- Leading user interview data-collection and analysis

Private Tutor

Self Employed

2016-2020

- Tutored majority of courses in bachelor of Computer Science curriculum to fellow students including
  - Data structure, Algorithms, Databases, Engineering Math, Fundamental Math

SELECTED PROJECTS

- Calculating causal effect of situational factor and committing a crime in a violent manner and also race on COMPAS score by first getting a causal graph using PC and GES algorithms and then deciding on the causal inference technique (propensity score and backdoor path)
- Accuracy evaluation of supervised machine learning algorithms in predicting Parkinson Disease on a dataset of pre and post diagnosed cases using python in Jupyter notebooks
- Formulating a model to predict diabetes based on clinical and demographic data using R in R-studio
- Finding edges in images using image processing methods including gray-scaling, expanding, smoothing, derivation, and finding maximums
- Implementing an object detection algorithm (SSD) on drones and evaluating its accuracy in detecting outdoor objects

SUMMARY

A passionate and self-motivated graduate student eager to use data-driven methods to inform decisions through deep analysis and compelling visualizations. Strong background in data structures, algorithms, and statistics.

EDUCATION

Ph.D. in Information Systems

University of Maryland, Baltimore County

Sept 2021 – May 2024

Relevant Courses: Computational Research Method, Quantitative Research Method, Data-Mining, Causal AI, Deep Learning (in-progress)

B.S. in Computer Engineering

Sheikh Bahaee University

September 2016 – August 2020

B.S. in English Translation

Sheikh Bahaee University

September 2008 – August 2012

SKILLS

Programming

Python (NumPy, Pandas, Scikit-Learn, Pytorch)
SQL MySQL
R W

Learning Algorithms

Linear and Logistic Regression
Decision Trees
Support Vector Machines (SVM)
K-nearest neighbour

Unsupervised Learning Algorithms

K-means clustering
Decision Trees
Support Vector Machines (SVM)

Ensemble Methods

Bagging
Random Forest
Boosting

Research methods

Qualitative
Quantitative
Computational