

# Samin Semsar

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## OBJECTIVE

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I am a doctoral student in Information Systems, actively pursuing a technical position within a dynamic organization where I can apply my expertise in machine and deep learning for the analysis of data.

## EDUCATION

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**Ph.D., Information Systems** Baltimore, Maryland | Expected: 2025

UNIVERSITY OF MARYLAND BALTIMORE COUNTY

**Relevant Courses:** Computational Research Methods, Data Mining, Deep Learning, Causal AI, Advanced Quantitative Research Methods, Software Testing

**B.S., Computer Engineering (Valedictorian)** Baharestan, Isfahan, Iran | 2020

SHEIKHBAHAEI UNIVERSITY

**Relevant Courses:** Data Structure, Artificial Intelligence, Discrete Mathematics, Engineering Statistics and Probability, Engineering Mathematics, Differential Equations, Database, Software Engineering

**B.A., English Translation** Baharestan, Isfahan, Iran | 2012

SHEIKHBAHAEI UNIVERSITY

## AWARD

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**Honorable Mention**, International Collegiate Programming Contest, 17th Iran Internet Contest, Sheikhbahaee University, November 28, 2019.

## ACADEMIC APPOINTMENTS

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**UNIVERSITY OF MARYLAND BALTIMORE COUNTY | RESEARCH ASSISTANT** Baltimore, Maryland | Summer 2023-Present

Investigating the causal connections among potential variables that either cause or impact the utilization of antibiotics and the occurrence of diarrhea in patients experiencing septic shock. (Advisor: Dr. Patricia Ordóñez)

studying regulatory ambiguities and providing means for software companies to have something to show their attempt at compliance. (Advisors: Doctors Aaron Massey and Sreedevi Sampath )

## PROJECTS

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### **BIAS IN PREDICTIVE POLICING MACHINES | INDEPENDENT STUDY WITH DR. FOULDS (DURING IS PH.D)**

- Demonstrated the bias caused by feedback loop in Predictive Policing Machines (PPM) by simulating usage of a PPM on Baltimore crime dataset.
- Simulated dispatching of police officers to the PPM's Kernel Density Estimated hot-spots of previous month.

### **SOFTWARE COMPLIANCE WITH AMBIGUOUS REGULATIONS | INDEPENDENT STUDY WITH DR. MASSEY (DURING IS PH.D)**

- A case study of modeling ambiguities within regulatory texts by software practitioners using grounded truth approach
- An Interview to determine a method for documenting and demonstrating the found connections between regulations' ambiguity models and other software artifacts (e.g. DFDs, ERDs, etc.) by software practitioners

### **APPLYING LEARNING ALGORITHMS ON PARKINSON PATIENTS' DATASET | DATA MINING COURSE PROJECT (DURING IS PH.D)**

- Accuracy evaluation of supervised machine learning algorithms in predicting Parkinson Disease on a dataset of pre and post diagnosed cases
- Dataset from UCI: It used to exist at the UCI archive ( Parkinson Patients Speech Dataset Link), now you can get it from Kaggle website (Kaggle Link)
- Data preprocessing:
  - Data cleaning: removed outliers and null values
  - Feature selection: mRMR to select K best features, Correlation heatmap (before and after feature selection)
  - Normalization: Standard normalization, Min-max normalization
- Learning algorithms applied: Logistic regression, Decision tree, Naive Bayes, SVM (Linear), KNN, MLP, RF
- Evaluation metrics: Accuracy, Recall, F1 score, MCC, Cross validation

## **THE USAGE OF DRONES IN HELPING THE VISUALLY IMPAIRED PEOPLE | COMPUTATIONAL RESEARCH METHODS COURSE PROJECT (DURING IS PH.D)**

- Outlined a research project using DJI-Tello drone
- Implemented the first phase of the research during this course.
- Used an object-detection algorithm (SSD) on the footage received from drone's camera
- Analyzed the data gathered, to see if SSD algorithm and the data set used (COCO names) was an acceptable choice or not

## **EDGE FINDING IN IMAGES | ARTIFICIAL INTELLIGENCE COURSE PROJECT (DURING CS B.S)**

- Implemented an Image processing project using MATLAB
- Finding edges in an image
- Method: gray-scaling->expanding->smoothing->derivation->finding the maximums

## **WINDOWS APPLICATION | DATABASE COURSE PROJECT (DURING CS B.S)**

- Designed and programmed a windows application using C# and a database in phpMyAdmin
- Purpose was to learn how to write/delete/update/read from/to a database

## **WEBSITE WITH PHP | INTERNET ENGINEERING COURSE PROJECT (DURING CS B.S)**

- Created a website using JavaScript + CSS + HTML for the front-end. PHP for the back-end. SQL server for Database

## **WEBSITE WITH PYTHON | SELF DEFINED PROJECT**

- Created a website using JavaScript + CSS + HTML for the front-end
- Python for the back-end

## **RESEARCH MENTORING**

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### **GRADUATE STUDENTS**

Ashutosh Latwala, Information Systems, UMBC	2023
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### **UNDERGRADUATE STUDENTS**

Shaniah Reece, Information Systems, UMBC	2022
Leah Prince, Information Systems, UMBC	2023
Adam Baji, Information Systems, UMBC	2023

## HIGH-SCHOOL STUDENTS

Gavin Tantleff

2022

## EMPLOYMENT

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**AGRA (ETELAAT GOSTARESH RAHE AYANDE) | CONTENT CREATOR, INTERN**      Isfahan, Iran | Summer 2017

Provided content for websites created with WordPress.

**SELF EMPLOYED | PRIVATE TUTORING**      Isfahan, Iran | 2016-2020

Tutored all courses in bachelor of Computer Science curriculum to fellow students

**KISH LANGUAGE INSTITUTE | ENGLISH TEACHER**      Isfahan, Iran | 2012-2016

Taught English classes from level 1 to 4 to adults, two courses per quarter. Gave three 2-hour classes each week per course.

## SKILLS

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**Programming languages:** MATLAB, Java, JavaScript, C++, Python, C#, PHP, SQL, R

**Spoken languages:** English (fluent, written and spoken), Persian (fluent, written and spoken), French (intermediate level, spoken), Arabic (intermediate level, spoken)

**Technology:** IntelliJIDEA, Visual Studio, Active-HDL, CodeVisionAVR, PyCharm