# Elahe Modarres

*Curriculum Vitae*

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*Elahe Modarres*
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## Education

2022–Expected 2026 **Bachelor of Science in Computer Science**, *Amirkabir University of Technology (AUT)*, Tehran, Iran

**Key Coursework:** Algorithms and Data Structures, Discrete Mathematics, Linear Algebra, Programming Paradigms.

## Technical Skills

- **Programming Languages:** Python, C, C++
- **Data Science/ML:** Pandas, NumPy, Scikit-learn, Matplotlib, Lazy-predict
- **Tools & Frameworks:** Qt (Basic), PostgreSQL (Basic), VS Code
- **Methodologies:** Object-Oriented Programming (OOP), Data Preprocessing, Basic Machine Learning

## Projects

1. Price Optimization & Customer Clustering with Genetic Algorithms

**Computational Intelligence / Optimization**, **GitHub Link:** github.com/elahehmood/Price-Optimization-Customer-Clustering-with-Genetic-Algorithms

Investigated the application of **genetic algorithms** to customer segmentation and price optimization. Proposed a clustering-based framework that adapts pricing strategies to heterogeneous consumer groups, demonstrating improvements in segmentation quality and profit maximization.

**Techniques:** Genetic Algorithms, Evolutionary Computation, Customer Segmentation, Optimization.

2. Graph Clustering & Data Mining Analysis

**Graph Theory / Data Mining**, **GitHub Link:** github.com/elahehmood/Graph-Clustering-Data-Mining-Analysis

Explored **graph clustering methodologies** for large-scale networked data. Conducted comparative analysis of community detection algorithms, highlighting their relative performance in uncovering latent structural patterns in real-world datasets.

**Techniques:** Graph Theory, Community Detection, Clustering Algorithms, Network Analysis.

3. WUSTL EHMS IoMT Security Analysis

**Cybersecurity / Internet of Medical Things (IoMT)**, **GitHub Link:** github.com/elahehmood/WUSTL-EHMS-IoMT-Security-Analysis

Performed a comprehensive **security evaluation** of the Washington University EHMS dataset, focusing on Internet of Medical Things (IoMT) devices. Assessed vulnerabilities and conducted risk analysis, providing recommendations for enhanced resilience in healthcare monitoring systems.

**Techniques:** Cybersecurity Analysis, IoMT Security, Risk Assessment, Data-driven Threat Modeling.

4. Advanced Data Mining Models for Customer Behavior Analytics

**Data Mining / Behavioral Analytics**, **GitHub Link:** github.com/elahehmood/Advanced-Data-Mining-Models-for-Customer-Behavior-Analytics

Designed and evaluated **advanced data mining models** for the prediction and analysis of customer behavior. Applied supervised and unsupervised techniques to extract behavioral insights, with emphasis on improving segmentation, retention, and targeted marketing strategies. **Techniques:** Data Mining, Supervised Learning, Unsupervised Learning, Behavioral Analytics.

## Languages

- **Persian (Farsi):** Native
- **English:** Intermediate