

# ALI ELAHI

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## EDUCATION

**Master of Science** Fall 2022 – Spring 2024  
**University of Illinois at Chicago**

- **Computer Science**  
Focus: Information Retrieval/Data Mining  
Thesis: Domain Adaptation Methods in Improving Beach Water Bacteria Levels Prediction  
— GPA: 4.0/4.0

**Bachelor of Science** 2017 – 2022  
**University of Tehran**

- **Computer Science (Minor)**  
Focus: Data Science  
— GPA: 3.142/4.0
- **Mechanical Engineering (Major)**  
— GPA: 2.984/4.0

### Awards/Honors

- Bronze Medal in National Chemistry Olympiad
- National Elite Foundation Grant - 4 years each equivalent to 1000 USD.
- Member of Iran's National Elites Foundation

## SKILLS

**Programming Languages:** Python, R, C++, Java

**Machine Learning Tools:** Scikit-learn, TensorFlow, PyTorch, NLTK, Apache Spark, Docker

**Data Manipulation and Visualization Tools:** Pandas, NumPy, SciPy, Matplotlib, Seaborn

**Software:** Latex, Linux, GitHub, Microsoft Office

## WORK HISTORY AND EXPERIENCES

**University of Illinois at Chicago**

September 2022 - now

**Prof. Cornelia Caragea** **Prof. Doina Caragea** **Prof. Samuel Dorevitch**

- Research Assistant: Office Of Naval Research Grant - Semi-Supervised Domain Adaptation (Co-Training, Distribution Adaptation, Subspace Alignment) in Water Quality Prediction.
- Receiving tuition and fee waiver, and stipend through this position.

**Yektanet Co.**

August 2020 - October 2021

- Data Scientist: Development and Maintenance of a Large-Scale Recommendation-System. Collaborative Filtering and Content-Based Algorithms.
- Business Analyst: Designing an advertisement bidding system. (Mechanism/Auction Design)
- Conducting research on online and offline evaluation methods for Recommender Systems.

**University of Tehran, Association for Computing Machinery, Student Chapter - Treasurer**

**University of Tehran - Head Teaching Assistant**

**Dr. Hakimeh Fadaei** , **Prof. Ehsan Khamespanah**

- Classes: Artificial Intelligence, Internet Engineering, and Engineering Statistics

## COURSEWORK

Big Data Mining (4/4)	Natural Language Processing (4/4)
Information Retrieval (4/4)	Reinforcement Learning (18.5/20)
Neural Networks (4/4)	Deep Learning & Applications (18.25/20)
Optimization (15.5/20)	Artificial Intelligence (15.5/20)
Quantitative Finance (4/4)	Economics and Computations (4/4)
Industrial Economics (16.5/20)	Financial Markets (4/4)

## PUBLICATIONS

Leveraging Readily Available Web Data to Predict Surface Water Bacteria Levels Using Domain Adaptation  
Submitted Dec 2023 (ACM - The Web Conference) - Ali Elahi, Cornelia Caragea, Samuel Dorevitch

Co-Training for Imbalanced tabular data: Beach Water Bacteria Level prediction  
Under Publication - Ali Elahi, Cornelia Caragea, Doina Caragea

A Comparative Study of Recommendation Algorithms: Online and Offline Evaluations on a Large-scale Recommender System  
2020 - Ali Elahi, Armin Zirak

# ACADEMIC PROJECTS

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## Time-Series Analysis on Financial Data

- Security Price Time-series Analysis [Python] [↗](#)  
Price Prediction Using Sequential ML Models (LSTM) - For S&P500, BTC, AAPL
- Buy, Hold, or Sale? [Python] [↗](#)  
Reinforcement Learning Model (MDP) for Trading Based on Next Day Price Prediction

## Natural Language Processing

- Emotion Classification and Finding Emotion Trigger Sentences Using PageRank Algorithm [Python]
- English to Persian Machine Translation with Transformer - On 1 GB Corpus [Pytorch] [↗](#)
- Relation Extraction Task - SemEval Dataset Using Bi-LSTM Architecture [Pytorch] [↗](#)

## Big Data/Data Mining

- MapReduce for Social Media Friend Recommendation [Python, Spark] [↗](#)
- Product Recommendation Using Association Rules [Python, Spark] [↗](#)

## Economics and Computation

- Implementations of Learning Algorithms in Game Theory: Best Response Dynamics, Fictitious Play, Regret Matching [Python] [↗](#)

## Deep Learning

- Image Captioning Model - Trained on Flickr8k - Convolutional + Bi-LSTM [Pytorch] [↗](#)
- Image Colorization - Stylization-based Architecture for Fast Deep Exemplar Colorization [Pytorch] [↗](#)
- CCNN: Crowd Counting - via Multi-Column Convolutional Network [Pytorch] [↗](#)
- SegNet: Pixel-Wise Semantic Segmentation [↗](#)  
Deep Convolutional Encoder-Decoder for Robust Pixel-Wise Labelling Using [Pytorch]

## Reinforcement Learning

- Markov Decision Process Profit Optimization - On-policy/Off-policy Monte-Carlo, Double Q-learning, Tree Back-up, SARSA and n-Step Expected SARSA [Python] [↗](#)
- Policy Iteration Algorithm for a Profit Maximization Problem [Python] [↗](#)
- Decision Making For Navigation Using N-armed Bandit, [Python] [↗](#)

## Internet Engineering

- Development and Deployment of a Food Ordering and Delivery Website [↗](#)  
[Spring, PostgreSQL, ReactJS, Docker, Kubernetes]

# REFERENCES

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Prof. Cornelia Caragea [↗](#)

✉ Mail

Prof. Samuel Dorevitch [↗](#)

✉ Mail

Assis. prof. E. Khamespanah [↗](#)

✉ Mail

Dr. Hakimeh Fadaei [↗](#)

✉ Mail