Mahdi Haji Alilue Bonab

Homepage | Google Scholar | Gmail | Linkedin | Github

Education

Sharif University of Technology
Bachelor of Science in Computer Science GPA: 17/34 : 20 *Tehran, Iran*

Publications

A Contrastive Teacher-Student Framework for Novelty Detection under Style Shifts **arXiv**

***3rd** author, in collaboration with Prof. Mohammad Hossein Rohban, Prof. Mahdieh Soleymani Baghshah, and Dr. Mohammad Sabokrou*

Scanning Trojaned Models Using Out-of-Distribution Samples **Accepted to NeurIPS 2024**

10th author, in collaboration with Prof. Mohammad Hossein Rohban and Dr. Mohammad Sabokrou

Research Experiences

Sharif University of Technology **Feb 2024 – present**
M.H. Rohban*Research Assistant, supervised by Prof.* ***M.H. Rohban*** *Tehran, Iran*

- Research areas: Out-of-Distribution Detection, Backdoor Attacks

Projects

- A Contrastive Teacher-Student Framework for Novelty Detection under Style Shifts (**arXiv**)
- TRODO: Scanning Trojaned Models Using Out-of-Distribution Samples (accepted to **NeurIPS 2024**)

Projects

Halfnet
- Track detailed user interactions with ads and stores event-specific metadata such as timestamps and IP addresses. It provides advanced analytics like hourly stats, CTR, and average time differences.
- Includes a customized admin interface for ad approval or rejection, with added features like search and filter functionality for enhanced usability
- Implements custom middleware for extracting user data (IP) and uses RESTful API endpoints.

Financial Analysis on X (Twitter)
- Preprocess multi-source datasets, including stock market data, tweets, and company information, to perform joint analysis
- Implement advanced statistical tests and deep neural network models to evaluate financial predictions
- Provide actionable insights for investors by integrating financial fundamentals with social media trends

Neural Network Approach to Pricing and Hedging Financial Options
- Develop a deep learning method to learn optimal exercise behavior and pricing strategies
- Calculate continuation values and design a stopping rule based on comparing current payoffs with continuation values
- Compute lower and upper bounds for option prices and derive hedging strategies.

Optimizing User Engagement: Analyzing Upworthy's Viral Content Strategy
- Utilize advanced practices in Numpy, Pandas, and Matplotlib
- Conduct statistical analyses on the provided dataset
- Generalize findings to suggest improvements for Upworthy's performance

University Website Replication
- University Portal Application (based on Sharif University Website
- Implemented using Java with JavaFX library
- Advanced Programming Course Project

Panorama Fusion from Multiple Images Using Homography
- Utilized Homography Matrices in OpenCV to Merge Images into Panoramic Views
- Computer Vision Course Project

Selected Courses

- Machine Learning Theory (M.Sc. Course): 20/20
- Computer Vision: 18.7/20
- Statistical Learning: 18.3/20
- Data Science: 17.1/20
- Mathematical Finance (M.Sc. Course): 16.5/20
- Statistics: 19.8/20
- Data Transfer and Networks: 20.0/20
- Stochastic Processes: 19.0/20

- Deep Learning for Computer Vision (Stanford): Audited
- Reinforcement Learning by David Silver (UCL): Audited

Teaching Assistance Experience

- Stochastic Processes (Head TA)
- Statistical Learning
- Statistics
- Advanced Programming
- Basic Programming

Skills

Programming Languages: Python, Java, R

Libraries/Frameworks: LangChain, Django[Rest Framework], PyTorch, Pandas, Numpy, Scikit-learn

Languages

Persian | Native Proficiency
English | Professional Proficiency