

PhD in Computer Science | Applied Scientist at Amazon | 10 years of industry experience in B2B & B2C sectors  
Data Science, Machine Learning, Credit Risk, Investment Research, Cybersecurity, Ad Sourcing and Relevance  
Author of Python packages: Atlantis, Abstract, Pensieve, Linguistics, Amazonian, Nightingale, Silverware

## WORK EXPERIENCE

Applied Scientist II ..... Amazon 2024.01 --- Now  
Sr. Staff Data Scientist ..... SecurityScorecard 2021.05 – 2023.07  
Sr. Data Scientist ..... Orbis Investments 2017.10 – 2021.04  
Data Scientist ..... Crelogix 2015.08 – 2017.08

## EDUCATION

PhD: Computer Science ..... University of British Columbia 2014  
Diploma: Management (unfinished) ..... McGill University 2007  
MSc: Electrical Engineering ..... Concordia University 2005  
BSc: Electrical Engineering ..... University of Tehran 2003

## SELECTED PAST PROJECTS

Semantic Substitute Ad Sourcing ..... Amazon

- Implemented ad sourcing models using **embeddings** of products and ads
- Developed **KNN search** for finding substitute products based on similarity
- Dialed-up a weblab to measure the impact of different variations
- Estimated annual impact: **\$210 million** sales, **\$108 million** ad revenue

Ransomware Risk Scores ..... SecurityScorecard

- Developed a model which predicts the likelihood of Ransomware attacks
- As a new product, it generated more than **\$3 million** in 2022
- The model has **97%** precision and **76%** recall
- Reduced computation cost by **\$216 thousand** per year

RiskGraph: Supply Chain Risk Estimation .... SecurityScorecard

- Developed a novel probabilistic graph model for 3rd & 4th party risk
- SecurityScorecard is filing a patent on this model

Investment Research ..... Orbis Investments

- Developed models to estimate car sales of two competing companies
- With **94%** accuracy, it outperformed its predecessors during the pandemic
- It was used to make the final investment decision

Credit Risk Forecasting ..... Crelogix Acceptance Corporation

- Developed two loss prediction models for loan defaults and early payouts
- These models used **survival analysis** with compound interest principles
- Instrumental in revenue forecasting, credit reserves, and loss mitigation
- PwC audited, analyzed, and validated the two models

## HARD SKILLS

Machine Learning 

- Predictive Modeling
- Unsupervised Learning
- Recommender Systems
- Deep Neural Networks
- Embedding Models
- KNN Search
- Generative AI
- NLP Techniques
- Entity Recognition
- Feature Engineering

Data Science 

- Statistical Data Analysis
- A/B Testing
- Hypothesis Testing
- Experiment Design
- Survival Analysis
- Visualization

Tech Stack 

- Databricks
- Snowflake
- Tableau
- AWS

Programming 

- PySpark
- ▼ Python
  - Pandas
  - Scikit-Learn
  - LangChain
  - PyTorch
  - Plotly
- SQL
- R
- C / C++

## MORE PAST PROJECTS

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### Leading Scoring Changes ..... SecurityScorecard

- Coordinating changes, analyzing impact, and ungating (releasing changes)
- Teams involved: **Attribution, Data Services, Sales, Customer Support**
- Reduced the ungating failure rate from **50%** to **0%**

### Team Building ..... SecurityScorecard

- Helped design the hiring process and recruited data scientists and analysts
- Designed interviews, managed the hiring process, trained interviewers

### Scoring Weight Adjustment ..... SecurityScorecard

- Led the initiative to find a new set of weights for scoring (the main product of the company)
- Developed a strategy for finding issue weights for producing security scores
- Developed novel approaches for dealing with collinearity


### Parked Domain Classification ..... SecurityScorecard

- Developed ensemble model to detect parked domains using DNS records
- Crucial to scoring, the main product of the company, it increased the detection rate from **2%** to **70%**

### Sparta: Python Library for ETL ..... SecurityScorecard

- Developed a Python library to standardize the way we access internal data resources
- The caching functionality increases the speed of transforming and loading data
- It saves development and computation time, reduces **AWS** and **Databricks** usage, and saves money

### Improving Ukraine's Cybersecurity Posture Against Russian Hackers ..... Volunteer Work

- Collected and curated cybersecurity vulnerabilities of Ukraine's infrastructure and industries 
- Sector analysis of Ukrainian and American targets for the threat-intel team and authorities

### Portfolio Performance Analysis ..... Orbis Investments

- Analyzed investment portfolio and found features with statistically significant effect
- Developed predictive models based on the portfolio and estimated the magnitude of features
- Developed good/bad stock classifiers with F1-score, accuracy, precision, recall above **80%**

### Entity Recognition and Classification ..... Orbis Investments

- Developed an **NLP** model capable of **detecting entities** such as corporations, products, persons
- Developed classifiers which read Wikipedia pages and classify their topic with up to **98%** accuracy

### Sentiment Analysis ..... Orbis Investments

- Developed an emotion detection model in **R** for analyzing **Glassdoor** reviews
- Developed a **CNN** model for tweet **sentiment analysis** which performed as well as the best 3rd party solution

### Investment Research ..... Orbis Investments

- Developed models to predict gaming revenue of a casino based on tourism and footfall  
My forecasts disagreed with the consensus and turned out to be closer to reality
- Developed a predictive model to forecast growth of a major US retail company, now in portfolio
- Developed a model for forecasting the number of used cars sold in China for investment research