

# Aref Moradi

MACHINE LEARNING ENGINEER

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## Skills

**Programming Languages:** Python, SQL, Bash, Java

**Tools and Libraries** PyTorch, Pytorch Lightning, AWS, Docker, Spark, Airflow, TensorFlow, Android

**Theory:** Linear Algebra, Reinforcement Learning, Statistical Machine Learning

## Education

### TU/e and KTH

Stockholm, Sweden

MASTER'S DEGREE IN DATA SCIENCE

Sep. 2018 - Aug. 2020

- Double degree program in Data Science with a minor in Business and Entrepreneurship
- First year at TU/e, Second year at KTH
- Awarded EIT scholarship of excellence which included a tuition fee waiver
- Average Grade: 8.28/10

### Amirkabir University of Technology

Tehran, Iran

B.S. IN SOFTWARE ENGINEERING

Sep. 2013 - Aug. 2018

- Ranked in the top 0.06% participants in the national university entrance exam (Konkour)

## NOTABLE PROJECTS AND COURSES

### GRADUATE

- Scalable Machine Learning and Deep Learning: **A** ([Histogram Method for Adversarial Example Detection Project](#))
- Data intensive computing: **A** ([Real-time Subtitle Rating Project](#))
- Advanced Algorithms: **A**
- Data Mining: **A**
- Visualization: **A** ([3D Rendering Project](#))
- Visual Computing Project: **A**
- Self-studied Reinforcement Learning: An Introduction
- Self-studied All of Statistics: Concise Course in Statistical Inference ([My Solutions](#))
- Self-studied Mathematics for Machine Learning book
- Modified CartPole problem solved using Reinforcement Learning ([Code](#))
- GTZAN Genre classification using CNNs ([Code](#))

### UNDERGRADUATE

- Engineering Mathematics: **A**
- Foundations of Matrices and Linear Algebra: **A**
- Signals and Systems: **A**
- Statistical Machine Learning (Master's course taken during Bachelor's): **B**

## Research and Teaching Experience

### Klarna

Stockholm, Sweden

WEB AUTOMATION RESEARCH TEAM

Jan. 2020 - Current

- Major contributions to the paper The Klarna Product Page Dataset: A Realistic Benchmark for Web Representation Learning. Implemented and evaluated the **FreeDOM** model from scratch and achieved a **0.95 F1-score**. Major contributions to the modular design of the code base to allow easy experimentation and model development ([paper](#)) ([repo](#)) ([FreeDOM paper](#))
- Wrote research proposals that resulted in **1 research grant** and **1 patent filing**
- Implemented offline dataset saving for **Reinforcement Learning** agent over the web to allow offline training
- Creating efficient representations of web pages to bootstrap training of RL agent
- Designed and implemented pipelines for pre-processing semi-structured web page data into efficient tree data structures
- Reduced training time of models by **60%** by using **IO optimizations** and **GPU training**
- Collaborated with the Swedish Environmental Research Institute (IVL) for master thesis: Combining Learned and Analytical Models for Predicting CO2e Emissions in Textile Products ([paper](#))

## Institute for Cognitive Sciences Studies

### INTERNSHIP

Tehran, Iran

Aug. 2017 - Sep. 2017

- Analyzed neural activity signals of finger tapping using the **fNIRS** neural data acquisition device
- Translated and edited a Persian manual for future students of the institute

## Amirkabir University of Technology

Tehran, Iran

### TEACHING ASSISTANT

- Data Structures and Algorithms, Helped with grading homework, (Spring 2017)
- Artificial Intelligence, Helped with grading homework and designing class projects, (Autumn 2016)
- Engineering Statistics, Held TA classes going through problems, (Spring 2016)

## Relevant Work Experience

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### Klarna

Stockholm, Sweden

#### MACHINE LEARNING ENGINEER - FULL TIME

Aug 2019 - Current

- Designed and developed model training and deployment pipelines using **Jenkins** and **AWS services**
- Researched, evaluated and developed SOTA **Computer Vision** and **NLP** models for ad content tagging, creation and moderation
- Experience with **Transformer** models in **CV** and **NLP** applications
- Improved inference times of models by **concurrency** in Python (**asyncio**)
- Moderated weekly paper reading sessions to keep updated with state-of-the-art research

### Divar

Tehran, Iran

#### DATA SCIENTIST/ENGINEER - FULL TIME

Sep.2017 - Sep. 2018

- Divar is the biggest Ad Marketplace in Iran with more than 10m monthly users. Divar is part of Cafe Bazaar holdings
- Performed **A/B test** for determining the location of the chat button which led to **10% increase** in chat usage
- Implement, deploy and maintain **Spark** and **Apache Airflow** applications for various ETL pipelines.
- Implemented **Ad category classifier** based on text
- Implemented chat data clustering and classification using **word2vec** and **fasttext** and visualizations using **t-sne** and **PCA**

#### ANDROID DEVELOPER - PART TIME

Aug. 2016 - Sep. 2017

- **Led** the design and implementation of a real-time Android chat client for the purpose of connecting buyers and sellers in Divar which resulted in a **promotion**
- **Mentored** junior Android Developer which resulted in delegating major tasks after **6 months** and completely taking over the Android client after deployment
- Experienced in **OOP** best practices and writing **clean and maintainable** code

### SpotYet

Stockholm, Sweden

#### CO-FOUNDER & FULLSTACK DEVELOPER - SLACKBOT FOR REMOTE CONNECTIONS

- SpotYet is a Slackbot for randomly matching people in Slack channels with fun ice-breakers and is currently used by more than **50 Slack work-spaces**
- Back-end development using AWS services such as **AWS Lambda** and **DynamoDB** and minor front-end development using **React**

## Certificates

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Nov. 2021 **TOEFL iBT**, Reading: 29 Listening: 30 Speaking: 30 Writing: 29 Total: 118

Oct. 2017 **GRE General**, Quantitative Reasoning: 167/170 Verbal Reasoning: 154/170 Analytical Writing: 5/6