Aref Moradi
Machine Learning Engineer

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Skills

Programming Languages:	Python, SQL, Bash, Java, C#
Tools and Libraries	PyTorch, RLlib, GCP, AWS, Docker, Spark, Airflow, TensorFlow, Unity
Theory:	Linear Algebra, Reinforcement Learning, Statistical Machine Learning

Work Experience

Resolution Games
Stockholm, Sweden

Machine Learning Engineer
February 2023 - Current

- Design and implementation of ETL pipeline using GCP services.
- Design and implementation of a custom solution for automatic ML training of RL models using Unity builds by leveraging GCP Pub/Sub and Powershell scripting.
- Reinforcement learning and imitation learning research and development applied to player-facing game features.
- Contribution to game difficulty design by providing game designers with custom control over RL models.

Klarna
Stockholm, Sweden

Machine Learning Engineer - full time
January 2020 - February 2023

AI Content Modeling Team

- Designed and developed model training and deployment pipelines using **Jenkins** and **AWS services** (e.g., AWS Lambda, AWS Sagemaker, AWS SQS)
- Researched, evaluated and implemented **Computer Vision** and **NLP** models for ad content tagging, creation and moderation
- Trained, evaluated and deployed image moderation model that achieved a **0.9 F1-score**
- Improved inference times of models by **50%** using appropriate **micro-service architectures** and **concurrency** in Python (**asyncio**)
- Facilitated the **on-boarding of 3 senior data scientists** by **leading** the establishment and documentation of service specifications, team coding practices, and team guidelines
- **Led** team ML engineering efforts by ensuring high code quality and performance which has led to **2 domain-wide recognitions**

Web Automation Research Team

- Implemented and evaluated the **FreeDOM** model from scratch and achieved a **0.95 F1-score** (Highest performance on average between evaluated models) which was a major part of the team research paper (paper) (repo) (FreeDOM paper)
- Reduced training time of models by **60%** by using **IO optimizations** and **GPU training**
- Moderated weekly paper reading sessions to keep updated with state-of-the-art research
- Refactored **Reinforcement Learning** powered agent for performing tasks over the web (**DQN**) to reduce the development time of adding novel policies
- Designed and automated data pipelines for pre-processing **semi-structured** web page data into efficient tree data structures that enabled easy filtering of data based on language
- Wrote research proposals that resulted in **1 research grant** and **1 patent filing**
- Improved functionality and fixed bugs in Klarna's open-source Web Traversal Library (repo)

Data Engineer - part time
Aug.2019 - Dec.2019

- Researched and identified the needs of analysts in the domain which led to aggregating **terabytes of purchase data** into summary tables for simplified access
- Developed and maintained **ETL** pipelines using **Amazon Redshift**, **Spark** and **Airflow**
- Implemented developer tools with preinstalled requirements using **Docker** which sped up analyst on-boarding

Divar *Tehran, Iran*

<small>DATA SCIENTIST/ENGINEER - FULL TIME</small> *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 chat button which led to **10% increase** in chat usage
- Implemented **Ad category classifier** based on text that achieved a **0.9% F1-score**
- **System owner** of Metabase analytics dashboard (rotating ownerships every 3 months)
- Improved and maintained ETL pipelines for more than **100GB** of data per day using **Hadoop**, **Spark**, **Zeppelin** and **Airflow**
- Implemented chat data clustering and classification using **word2vec** and **fasttext** for generating pre-defined messages and visualizations using **t-sne** and **PCA**
- Conducted analyses on chat data used for data-driven choices in the team. Implementing a KPI dashboard using dash and plotly to give daily insights to members of the team and the product manager
- **Scrum master** of chat team with great knowledge of agile scrum software processes and helped resolve communication problems in the team

<small>ANDROID DEVELOPER - PART TIME</small> *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**
- Collaborated with **cross-functional team of 6 people** to ensure on-time delivery of chat feature (The whole process from design to deployment took **9 months**)
- **Mentored** junior Android Developer which resulted in delegating major tasks after **6 months** and completely taking over the Android client after deployment
- Designed and built modular code components using RxJava, event-driven programming, and android frameworks such as MVP
- Experienced in **OOP** best practices and writing **clean and maintainable** code

SpotYet *Stockholm, Sweden*

<small>CO-FOUNDER & FULLSTACK DEVELOPER - SLACKBOT FOR REMOTE CONNECTIONS</small>

- 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**
- Identified customers' needs and business decisions for the SpotYet and SpotBot product
- Scrum master of a team of 6 people ensuring organized and routine team meetings

Research Experience

Klarna *Stockholm, Sweden*

<small>WEB AUTOMATION RESEARCH TEAM</small>

- The Klarna Product Page Dataset: A Realistic Benchmark for Web Representation Learning (paper) (repo)
- Collaborated with the Swedish Environmental Research Institute (IVL) and Klarna to create a carbon emissions estimator model for textile products as part of master thesis titled: Combining Learned and Analytical Models for Predicting CO2e Emissions in Textile Products (paper)

Education

KTH and TU/e *Stockholm, Sweden*

<small>MASTER'S DEGREE IN DATA SCIENCE</small> *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

Amirkabir University of Technology *Tehran, Iran*

<small>B.S. IN SOFTWARE ENGINEERING</small> *Sep. 2013 - Aug. 2018*

- Ranked in the top 0.06% participants in the national university entrance exam (Konkour)
- Top 3 Technical Universities in Iran

Certificates

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