

Arash Arbabi

SOFTWARE ENGINEER · DATA SCIENTIST

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“The signal is the truth. The noise is what distracts us from the truth.” –Nate Silver

Research Interests

- 💡 Artificial Intelligence
- 💡 Bayesian Inference
- 💡 Bioinformatics

Education

IUST (Iran University of Science and Technology)

M.S. IN ARTIFICIAL INTELLIGENCE

Tehran, Iran

Sep. 2021 - Sep. 2023

University of Science and Culture

B.S. IN COMPUTER ENGINEERING - SOFTWARE

Tehran, Iran

Sep. 2016 - Dec. 2020

- Major: Information Systems
- GPA of last year: 3.76
- Thesis: “Season detection in images of nature” under Professor Shayegan Fard
- Relevant courses: Artificial Intelligence [19/20], Internet Engineering [18/20], Programming Language Design [20/20], Video Game Design [17/20], Physics II [17.1], Network Lab. [19/20], Microprocessor Lab. [20/20], Compiler Design Principles [19/20], Operating Systems Lab. [18/20], Presentation and Research [16/20], Engineering Mathematics [17.98], Advanced Programming [17.62/20], Fundamentals of Computer and Programming [17/20]

Open-Source Contributions

Visual Studio Code

CODE EDITOR

- Bug fix on the integrated terminal's search
- Bug fix on notifications for extension enabling/disabling

Mina

DECENTRALIZED CRYPTO CURRENCY USING ZERO KNOWLEDGE PROOFS

- Contributions to documentation

BullMQ

JOB PROCESSING QUEUE FOR TYPESCRIPT USING A REDIS BACKEND

- Bug fix on the method returning the number of active jobs inside a queue

Work Experience

Dej Inc.

Vancouver, Canada

TECHNICAL TEAM LEAD - SENIOR SOFTWARE ENGINEER

Jul. 2020 - present

- Designed and implemented a robust decentralized system of workers in different data centers spanning multiple continents for processing jobs on multiple queues using Redis and BullMQ.
- Deployed Drone for running CI/CD pipelines in a decentralized manner by utilizing Drone runners in different data centers.
- Wrote a project specific helm chart to easily redeploy our software stack on any Kubernetes cluster.
- Optimization of some MongoDB queries, increasing throughput up to 100x.
- Wrote efficient and complex MongoDB Aggregation pipelines.
- Built a database migration system for MongoDB to change structures of specific document collections.
- Deployed a monitoring system(Grafana, Prometheus) using helm which gather system and business metrics as well as Kubernetes cluster metrics.
- Provisioned 4 Kubernetes clusters for our application in multiple data centers and cloud providers.

- Algorithm for detecting the high school major that an exam's questions were based on with 92% accuracy using an ensemble
- Automatic detection of crawlers using a decision tree and an alerting system utilizing emails and text messages.
- Implemented captcha mechanism from scratch to circumvent brute-force attacks
- Optimization of ElasticSearch schemas to increase full-text search performance by up to 10x
- Built a Dynamic GraphQL schema generation mechanism.
- Built a pipeline for running integration and unit tests.
- Built multiple GraphQL APIs for fetching data from our MongoDB database
- Implemented authentication and authorization using JWT tokens
- Data structure optimization for a module decreasing the amount of data transfer from client to server by 83%

Notable Projects

- 2021 **Piracy Detection using GPT-2**
I Fine-tuned GPT-2 to help with Piracy detection on Google Search.
- 2020 **Season Detection in Pictures of Nature**
I fine tuned AlexNet to classify pictures of nature into spring, summer, fall and winter with a 91% accuracy.
- 2019 **Online 8 Puzzle Solver**
8 Puzzle solver using Breadth First Search as the search algorithm Written in JavaScript, facilitating browser workers so that the rendering engine doesn't freeze while running the search algorithm.
- 2019 **Three-Address Code Generator Compiler**
Fully working Compiler with a Recursive descent parser and parser assisted code translation including a symbol table for variable declaration implemented in C.
- 2018 **Online Gambling with Bitcoin**
An online casino for gambling bitcoin using a dice game.
- 2017 **Lyric Master**
Online website for searching and finding Persian music lyrics.
- 2017 **Advanced Tic Tac Toe**
TicTacToe Game which has a total of 10 tables, one main table, and 9 mini tables inside the slots of the main table.
- 2017 **Online Cloth Shop**
A website for buying clothes.
- 2017 **Telegram Translation Bot**
Telegram bot for translating English to Persian.