Amir Lavasani

Full-Stack Sofware Engineer

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Work Experience

Inteliver (A.I. SaaS Startup) *05/2020 – 06/2023*
Technical Co-Founder *Tehran, Iran*

- Led the development of an Image Management SaaS platform, featuring 9 interconnected microservices, achieving a rapid startup time-to-market of only 3 months.
- Designed and implemented a robust state-less API server, handling user management, analytics, and payments, adhering to RESTful OpenAPI specifications, Utilizing aiohttp, InfluxDB, MongoDB, and JWT.
- Optimized the image modifier service, improving modification speed from 10 to 50 images per second on a single CPU core, with a request latency of under 80 milliseconds.
- Engineered an object detection feature, enabling real-time object detection and image classification using Yolo, MinIO.
- Enhanced microservice's internal communication by adopting gRPC over HTTP, improving intercommunication speed by 5x.
- Created a comprehensive user dashboard front-end, empowering users to manage their services, using React.js, Redux, and Saga.

AmerAndish Hooshmand (A.I. Solutions) *06/2017 – 02/2020*
Lead Full-Stack Engineer *Tehran, Iran*

- Revolutionized Persian speech recognition accuracy by inventing FarsAva, an advanced LSTM-based large vocabulary Automatic Speech Recognition system, using end-to-end Deep LSTMs and Distributed GPU training in PyTorch, surpassing all previous models by an impressive 14%.
- Enhanced Persian speech corpus by 10x, overseeing the creation, cleaning, annotation, and verification of a vast dataset exceeding 7000 hours, compared to the previous 68-hour dataset.
- Led the development of a robust data acquisition pipeline, including web audio data scraping, speech extraction and segmentation, data cleaning and normalization, and transcription and labeling, utilizing tools like BeautifulSoup, Flask, Kaldi, HDF5, and more, improving data collection speed by 2.5x.
- Implemented a real-time data visualization dashboard for the Farsava dataset, facilitating in-depth analysis of our training data, employing FastAPI, Redis, and React.js.
- Orchestrated the development of an extensive API platform, featuring a central proxy service and multiple AI model services, enabling real-time speech recognition through RESTful endpoints, Leveraged uvicorn, aiohttp, and Docker.

DG Group (Security and Network Solutions) *04/2016 – 05/2017*
Back-End and ML Engineer *Tehran, Iran*

- Achieved an impressive phoneme accuracy of 98% by training a robust grapheme-to-phoneme model tailored for the Persian language, employing deep RNNs, and TensorFlow.
- Implemented a speech segmentation classifier that accurately discriminated between speech, non-speech, and silence, trained on a 300-hour dataset, utilizing SVM, and Scikit-Learn, achieving a 96% accuracy rate.
- Led development of a Continuous ASR system for recognizing spoken Persian numbers, using C++, Kaldi, and DBNs, achieving a 6% WER, trained on 40 hours of meticulously labeled data.
- Conducted extensive research on ASR methods, libraries, and over a hundred NLP papers, creating two speech datasets and a sophisticated roadmap for training end-to-end DNNs for Persian ASR.

Education

Master of Engineering in Artificial Intelligence and Robotics *Azad University, North Tehran Campus*
09/2015 – 05/2018
Thesis: Persian Large Vocabulary Continuous Speech Recognition Using Deep Recurrent Neural Networks

Advisor: Dr. M Mansouri

Bachelor's Degree in Software Engineering *SBU University, Tehran*
09/2008 – 02/2014
Thesis: Ways to improve learning in neural networks using back-propagation algorithms
Advisor: Dr. A Mahmoodi

Projects

Designing and Implementing Farsava Speech Corpora Data Pipeline *Jul 2017 - Apr 2019*
Skills: Team Leadership · Datasets Design · Python · Speech Processing
Led the design and implementation of the Farsava Speech Corpora data pipeline, curating an extensive dataset of over 7,000 hours, which revolutionized the available Persian speech datasets and significantly enhanced Persian Speech Recognition.

Grapheme-2-Phoneme (G2P) Model for Persian Speech Recognition *Nov 2016 - Apr 2017*
Skills: Python · Machine Learning · Tensorflow
Led the development of a Grapheme-2-Phoneme (G2P) model for a state-of-the-art Persian speech recognition system, achieving an impressive 97% accuracy in labeling new words and enabling the creation of a comprehensive 360K-word pronunciation dictionary, contributing significantly to the system's exceptional performance and accuracy.

Continuous ASR System for Persian Spoken Numbers *Jan 2016 - Jul 2016*
Skills: Speech Recognition · Kaldi · Deep Neural Networks
Led the development of a continuous Automatic Speech Recognition (ASR) system for Persian spoken numbers, achieving an impressive 6% Word Error Rate (WER) on the testing dataset, revolutionizing voice-enabled input in various applications and enhancing user experience across diverse platforms.

Technical Full-Stack Skills

Front-End Development	React.js, Redux, Saga
Back-End Development	Python, FastAPI, Django
Databases	PostgreSQL, Influxdb, MinIO
DevOps	Linux, Dockerization, Bash Scripting
A.I. Frameworks	TensorFlow, PyTorch, Kaldi, Yolo
Software Development	Git, Agile, GitHub Actions

Languages

English	Full Professional Proficiency
Persian	Native

Standard Examination

TOEFL IBT	Total Score: 98
GRE General	Verbal Reasoning: 153, Quantitative Reasoning: 167, Analytical Writing: 3.5

Awards

Top 0.1% in National Entrance Exam	National Organization of Testing	*2008*
Second Best Design in RoboCupRescue	IranOpen RoboCup	*2007*
4th Place Award in 2D Soccer Simulation Competition	Iran's Soccer Simulation Committee	*2006*