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Amin Ettefagh

AI & Backend developer

Website
Linkedin
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Summary

A results-driven software engineer with a robust multidisciplinary background spanning software development, machine learning, and AI solutions. I specialize in crafting intelligent systems, such as deepfake detection and Persian OCR, leveraging my expertise in Python, AI frameworks, and backend technologies. Over the years, I've spearheaded innovative projects like video-based identity verification and chatbot systems for complex domains, combining technical depth with scalable architecture. My passion lies in solving real-world challenges through cutting-edge technologies, emphasizing clean code, scalability, and impactful solutions. With a strong foundation in academic research and continuous learning, I thrive at the intersection of innovation and practical application.

Skills

- **Languages** : Python, R, JavaScript, TypeScript, C++
- **AI, ML, DL** : Neural Networks, TensorFlow, PyTorch, OCR, Tesseract, STT, Whisper, Deepfake, Dlib, SyncNet, OpenCV, LLM, NLP
- **Backend** : Django, Flask, FastAPI, Docker, Git, Postman, JWT, Crawler
- **Databases** : SQL Server, MySQL, PostgreSQL
- **Frontend** : HTML, CSS, Tailwind, Bootstrap, React

Experience

- **Sepand BI (Bank Mehr) :**
  - Authentication system — September 2024 – Present
    Developed a comprehensive video-based authentication system to detect deepfake videos and match user speech with provided identity.
    Tools : Dlib, Face Recognition, OpenCV, Whisper, SyncNet, Mediapipe , DeepFake ,…
  - OCR system — March 2024 – September 2024 (6 mons)
    Designed and implemented a complete OCR system, including frontend, backend, and AI/ML components.
    Tools : OCR, YOLO, Tesseract, PaddleOCR, Neural Networks, OpenCV, NLP, SQL Server, Web Crawlers ,…
- **Dpscript team :**
  - ChatBot (Sahpad) — September 2023 – March 2024 (6 mons)
    Collaborated on a university chatbot project trained on academic policies and cleaned dataset for using.
    Tools : LLM, ML, DL, PyTorch, TensorFlow, Pandas, NumPy, Chatbot ,…
- **SimCart.com :**
  - Backend Development Intern — September 2022 – September 2023 (12 mons)
    Assisted in backend development for web platforms and APIs.
    Tools : Python, Django, Flask, FastAPI, MySQL, PostgreSQL ,…
- **Freelance :**
  - Frontend Developer — September 2021 – September 2022 (12 mons)
    Developed small-scale projects.
    Tools : JavaScript, TypeScript, React, HTML, CSS, Tailwind, Bootstrap.
  - Wordpress Development — September 2020 – September 2021 (12 mons)
    Designed WordPress websites for startups.
    Tools: WordPress.
  - UI/UX Design — September 2019 – September 2020 (18 mons)
    Worked on UI/UX designs for websites.
    Tools : Figma, Adobe XD, Sketch, Spline.

Projects

- Video-Based Identity Verification System
  This system verifies identity through a video where a user is asked to record themselves saying a simple Persian sentence. The system extracts the audio from the video, removes noise, and uses STT (speech-to-text) models to convert the spoken words into text. Through NLP techniques, phonetically similar Persian letters are normalized and compared to the original sentence. SyncNet is then employed to detect deepfake videos or audio dubbing. Finally, facial recognition is used to compare the user's face in the video with their registered photo. By combining these three methods, the system ensures reliable identity verification.
  This end-to-end project is currently under development and is intended to be used as a B2B subscription service.

- Persian OCR System Development

  I developed a Persian OCR system for Sepand Company, designed to extract Persian text from various documents. I began by collecting and cleaning datasets using a custom crawler and created synthetic data to complete the dataset. Using libraries such as Tesseract, PaddleOCR, EasyOCR, Hezar, and a custom neural network, I retrained models for better accuracy. YOLO was integrated to detect document regions, reducing OCR model overhead, and an internal architecture was designed for efficient processing.

  I built a secure SQL Server database with encrypted data storage, continuous backups, and recovery mechanisms. The backend was developed using Flask, with APIs designed in FastAPI, supporting user authentication, subscription-based access, and secure transactions. The frontend, developed with React, features a clean and user-friendly UI. Finally, the system was deployed on a Windows IIS Server and is now available as a B2B subscription service.

  This project was built with clean code, SOLID principles, and a component-based structure to ensure scalability and maintainability.
- Banking Chatbot System

  This system begins by directing users to an FAQ section. If their question isn't answered, they can ask it directly. The system uses similarity matching to display related answers based on the question. If no suitable response is found, the query is forwarded to a custom-trained chatbot specifically designed for banking data, and the response is sent back to the user. A safeguard mechanism is also implemented to ignore irrelevant or inappropriate questions.

  This project is currently under development.
- University Chatbot System

  This system begins by directing users to an FAQ section. If the user's question is not found, they can ask their question directly. The system analyzes the query and displays similar answers based on similarity percentages. If no suitable response is found, the query is sent to a specialized, trained chatbot tailored to the university's rules and regulations, which then provides a response. A safeguard mechanism ensures irrelevant answers are not delivered.

  The project utilizes a comprehensive and well-organized database of university policies and was developed using Django and Next.js. Currently, the system is offline due to server issues.

Volunteering

- Back End developer of CECKIAU I volunteered in the Computer Science Association — September 2022 – March 2023 (6 mons)
- Front End developer of CECKIAU I volunteered in the Computer Science Association — March 2022 – September 2022 (6 mons)
- TA and Teaching Experience

  Created and managed educational content on computer science topics for undergraduate students on my YouTube channel. This initiative aims to provide accessible, high-quality tutorials on fundamental computer science concepts, supporting students in their academic journey and enhancing their understanding of core subjects. Channel

Education

- Bachelor of Software Engineering Islamic Azad University Karaj Branch — September 2021 – present

Research

- "Metabolomic machine learning predictor for diagnosis and prognosis of gastric cancer" DOI

  This research focuses on developing advanced machine learning models for metabolomic data analysis, contributing to more accurate diagnostic and prognostic tools for gastric cancer.

Languages

- Persian (native)
- English (professional for work)
- Turkish (Elementry)