Ali Bozorgzad

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Skills

- **Programming Languages:** Python, Kotlin, Java, C, C++, PHP, SQL, Assembly, Matlab, Dart, R
- **LLM & Deep Learning:** Fine-Tuning & PEFT (LoRA/QLoRA), RAG, Quantization, LangChain Agent, LlamaIndex, Hugging Face Transformers, PyTorch, TensorFlow, OpenCV, Keras, Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn
- **Android Development:** Jetpack Compose, Modern Android Development (MAD), UDF, MVVM, Material Design, Jetpack Navigation, Coroutines, Flows, Retrofit, Coil, Room, Preferences DataStore, Hilt, WorkManager, Interoperability, Push Notifications (FCM)
- **Web Development:** JavaScript, TypeScript, React, Chakra, Bootstrap, jQuery, RESTful API Design
- **Cloud Computing & DevOps:** Docker, CI/CD
- **Testing & Quality Assurance:** Unit Testing, Integration Testing
- **Other:** Git, Unity, Linux, OOP, SOLID, Agile

Research

Master of Science Thesis

Under supervision of Dr. Amir Khorsandi

- **SimFedSwap: Smart Swapping Approach Based on Neural Network Models Similarity for Enhancing Federated Learning:** Proposed SimFedSwap, a method that boosts federated learning convergence by swapping models between clients with the most dissimilar data distributions. Designed two algorithms, GS and MSS, and achieved approximately 1% higher global accuracy than random swapping in large-scale non-IID settings, using server-coordinated exchanges to preserve privacy.

Pattern Recognition and Computing Research Laboratory

Under supervision of Dr. Abdolreza Mirzaei

- **MOD-CLIP: One-Stage Multi-Label Object Detection via Distilling CLIP and Label Correlation Modeling:** Proposes an approach for one-stage multi-label object detection in videos by combining CLIP distillation with a graph neural network-based label correlation learning framework to improve detection accuracy and generalization to unseen scenarios.
- **YOLOv8 for Real-Time Multi-Label Object Detection in Autonomous Driving, ROAD-R Dataset Study:** Replaced the original *3D-RetinaNet* detector with *YOLOv8* within the *"ROAD-R: The Autonomous Driving Dataset with Logical Requirements"* framework, targeting improved real-time inference speed without compromising multi-label detection accuracy in complex driving environments.

Experience

Computer Network Lab Instructor — **Isfahan University of Technology** — ***Isfahan, Iran*** — **Feb 2023 - Jun 2025**

- Guided over 80 students in building real-world network scenarios using **Cisco** physical routers and switches.
- Designed lab instructions and exams that enhanced networking concept understanding, leading to a 15% score improvement.

Android Engineer — **Hamgam Azmoon Company** — ***Isfahan, Iran*** — **Oct 2017 - Sep 2019**

- Engineered a user-specific notification system triggered by login/logout events with FCM, resulting in a 4x increase in user retention.
- Optimized animations and resource handling to cut UI thread load and boost responsiveness by 2x.
- Restructured API contracts through collaboration with backend teams, reducing redundant calls by 30% and boosting app efficiency.
- Refactored 10k+ lines of legacy code using modern **design patterns**, doubling maintainability and readability across core modules.
- Developed a custom progress bar, improving upload transparency and reducing perceived wait time by up to 50%.
- Implemented a smart comment sorting algorithm based on engagement metrics, which boosted comment replies by 4x.
- Engineered bi-directional (LTR/RTL) layout support, enabling seamless Eng-Per language switching and ensuring UI consistency.
- Deployed **Google Sign-In**, adopted by 70% of new users, streamlining authentication and accelerating onboarding.
- Customized UI components following **Material Design** principles for a consistent and intuitive user interface across all app modules.

Laptop & Computer Repairing — **Azin Computer Repair Center** — ***Isfahan, Iran*** — **May 2013 – Jan 2014**

- Diagnosed and repaired hardware/software issues, boosting performance and achieving 95% customer satisfaction.
- Installed and configured operating systems and drivers, restoring device functionality and reducing downtime by 30%.

HONORS & AWARDS

- **Bronze Award:** 3rd place in Pest & Plant Disease Identification in **Vision AI Competition** at Shahin Shahr 3rd AI Event *(Feb 2025)*.
- Awarded financial recognition for **ranking first** in the department at the end of each academic term *(2014 - 2017)*.
- **Gold Award:** First place at Championships Programming And Web, C++ Coding Algorithm at Ragheb Isfahani Institute, *(Apr 2015)*.

Certificates

- **Trustworthiness in Deep Learning:** With in-depth study of adversarial attacks, data poisoning, backdoor attacks, anomaly detection, spurious correlations, and compositional generalization *(Sep 2024)*.
- **Deep and Machine Learning:** Covering representation & self-supervised learning, GANs, cycleGAN, and stable diffusion *(Aug 2024)*.

Projects

- **Google Android Compose:** Google's official course on *Modern Android Development (MAD)* architecture using *Kotlin* and *Jetpack Compose*, building 30+ apps that implement industry best practices for UI, architecture, data, and networking *(Jul–Oct 2025)*.
- **TEDxIUT.com:** Volunteered as a **ReactJS/TS** web designer at *TEDxIUT*, creating a bilingual site for 20k+ visitors *(May 2025)*.
- **RapidRemit:** Developed a **Python** Telegram bot to automate exam registration, reservations, and hotel bookings, reducing manual work by 4x while using **MySQL** for efficient data handling *(Mar 2025)*.
- **Autonomous Car:** Developed an autonomous car simulation using the **Udacity Simulator** with **NVIDIA** model, implementing computer vision and deep learning techniques to enable lane detection and real-time steering control *(Aug 2023)*.
- **Angle of Spray:** Developed a real-time **image processing** application using **Python** and **Tkinter** to detect and measure the spray angle through classical computer vision techniques such as edge detection, *Hough* transform, and geometric analysis *(Aug 2022)*.
- **Educational eBook:** *"Learning Android Development with Java"*, Developed a 100+ page beginner-friendly guide covering Android SDK, Java, UI components, and app lifecycle, shared with students to support hands-on learning in mobile development *(Sep 2017)*.

Education

M.Sc. in Artificial Intelligence & Robotics **Isfahan University of Technology** ***Isfahan, Iran*** **Sep 2021 - Sep 2024**
Fully Funded (Merit), **GPA:** 3.87/4.0

- **Thesis:** SimFedSwap, Smart Swapping Approach Based on Neural Network Models Similarity for Enhancing **Federated Learning**

B.Sc. in Software Engineering **Shamsipour Technical College** ***Tehran, Iran*** **Jan 2016 - Sep 2017**
Fully Funded (Merit), **GPA:** 3.71/4.0

- **Awarded first rank** in the graduating cohort for academic excellence
- **Project:** Developed a full-stack Android app for students to explore, rate, and review universities, featuring dual-language support for accessibility. Integrated with a **RESTful** backend for seamless data synchronization **(Android, PHP, MySQL, Full-Stack)**.

A.Sc. in Software Engineering **Mohajer Technical College** ***Isfahan, Iran*** **Jan 2014 - Jan 2016**
Fully Funded (Merit), **GPA:** 3.45/4.0

- **Awarded first rank** in the graduating cohort for academic excellence
- **Project:** Built a full-stack restaurant ordering website enabling customers to browse the menu, place orders, and make secure online payments. Developed the backend using MVC architecture for clean and maintainable code **(PHP, MVC, jQuery, MySQL)**.

Teaching Assistant

Graduate

- **Deep Learning**, Supervised by Dr. Samaneh Hosseini, *(Fall 2023)*
- **Machine Learning**, Supervised by Dr. Maziar Palhang, *(Fall 2023)*
- **Swarm Intelligence**, Supervised by Dr. Samaneh Hosseini, *(Spring 2023)*
- **Data Mining**, Supervised by Dr. Saba Sareminia, *(Spring 2023)*

Under Graduate

- **Computational Intelligence**, Supervised by Dr. Samaneh Hosseini, *(Spring 2024)*
- **Digital System Design I Lab**, Supervised by Dr. Nader Karimi, *(Spring 2023, Fall 2023, Spring 2024)*
- **Basic Programming Lab**, Supervised by Dr. Jalal Zahabi, *(Spring 2023, Fall 2023, Spring 2024)*
- **Computer Vision Lab**, Supervised by Dr. Nader Karimi, *(Fall 2023)*
- **Advanced Programming Lab**, Supervised by Dr. Zeinab Zali, *(Spring 2023)*
- **Basic Programming**, Supervised by Dr. Mohammad Mehdi Naghsh, *(Spring 2023)*
- **Assembly**, Supervised by Dr. MohammadReza Mojtabaei, *(Fall 2015)*
- **Data Structure**, Supervised by Dr. MohammadReza Mojtabaei, *(Spring 2015)*

Volunteering

- Serving as a web designer and on-site support member for *TEDxIUT*, contributing to the event's digital presence *(May 2025)*.
- Organized a campus **Web Programming workshop** with 40+ attendees *(Jan 2017)*.

Achievements

- Reached the finals of the Shamsipour University Table Tennis Championship and was invited to join the university's official table tennis team *(Nov 2016)*.
- Received Advanced English Course Certification from Pooyesh Language School, Isfahan, Iran *(Oct 2014)*.
- Bronze Medalist in Provincial Football Championship | Team Member, Sepahan City FC *(Aug 2003)*.

Interests

- **Intellectual Interests:** Science communication, Philosophy of AI
- **Technical Interests:** AR/VR, Open-source software
- **Personal Passions:** Traveling, Table tennis, Chess