

# ALI BOZORGZAD

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## EDUCATION

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| <b>M.Sc. in Artificial Intelligence &amp; Robotics</b><br>Fully Funded (Merit), GPA: 3.87/4.0<br>• <b>Thesis:</b> Smart Swapping Approach Based on Neural Network Models Similarity for Enhancing <b>Federated Learning</b>   | <b>Isfahan University of Technology</b> | <b>Isfahan, Iran</b> Sep 2021 - Sep 2024 |
| <b>B.Sc. in Software Engineering</b><br>Fully Funded (Merit), GPA: 3.71/4.0<br>• <b>Awarded first rank</b> in the graduating cohort for academic excellence<br>• <b>Project:</b> Developed a full-stack Android app for students to explore, rate, and review universities, featuring dual-language support for accessibility. Integrated with a <b>RESTful</b> backend for seamless data synchronization ( <b>Android, PHP, MySQL, Full-Stack</b> ). | <b>Shamsipour Technical College</b>     | <b>Tehran, Iran</b> Jan 2016 - Sep 2017  |
| <b>A.Sc. in Software Engineering</b><br>Fully Funded (Merit), GPA: 3.45/4.0<br>• <b>Awarded first rank</b> in the graduating cohort for academic excellence<br>• <b>Project:</b> 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 ( <b>PHP, MVC, jQuery, MySQL</b> ).                | <b>Mohajer Technical College</b>        | <b>Isfahan, Iran</b> Jan 2014 - Jan 2016 |

## EXPERIENCE

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| <b>Computer Network Lab Instructor</b><br>• Guided over 80 students in building real-world network scenarios using <b>Cisco</b> physical routers and switches.<br>• Designed lab instructions and exams that enhanced networking concept understanding, leading to a 15% score improvement.  | <b>Isfahan University of Technology</b> | <b>Isfahan, Iran</b> Feb 2023 - Jun 2025 |
| <b>Android Engineer</b><br>• Engineered a user-specific notification system triggered by login/logout events with FCM, resulting in a 4x increase in user retention.<br>• Optimized animations and resource handling to cut UI thread load and boost responsiveness by 2x.<br>• Restructured API contracts through collaboration with backend teams, reducing redundant calls by 30% and boosting app efficiency.<br>• Refactored 10k+ lines of legacy code using modern <b>design patterns</b> , doubling maintainability and readability across core modules.<br>• Developed a custom progress bar, improving upload transparency and reducing perceived wait time by up to 50%.<br>• Implemented a smart comment sorting algorithm based on engagement metrics, which boosted comment replies by 4x.<br>• Engineered bi-directional (LTR/RTL) layout support, enabling seamless Eng-Per language switching and ensuring UI consistency.<br>• Deployed <b>Google Sign-In</b> , adopted by 70% of new users, streamlining authentication and accelerating onboarding.<br>• Customized UI components following <b>Material Design</b> principles for a consistent and intuitive user interface across all app modules. | <b>Hamgam Azmoon Company</b>            | <b>Isfahan, Iran</b> Oct 2017 - Sep 2019 |
| <b>Laptop &amp; Computer Repairing</b><br>• Diagnosed and repaired hardware/software issues, boosting performance and achieving 95% customer satisfaction.<br>• Installed and configured operating systems and drivers, restoring device functionality and reducing downtime by 30%.   | <b>Azin Computer Repair Center</b>      | <b>Isfahan, Iran</b> May 2013 – Jan 2014 |

## 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: (Preprint)**  
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.

## 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).

## TEACHING ASSISTANT

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### 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)*

## PROJECTS

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- **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)*.

## SKILLS

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- **Programming Languages**: Kotlin, Java, Python, C, C++, PHP, SQL, Assembly, Matlab, Dart, R
- **Android Development**: Jetpack Compose, Modern Android Development (MAD), UDF, MVVM, Material Design, Retrofit, Coil, Jetpack Navigation, Coroutines, Flows, Room, Preferences DataStore, Hilt, WorkManager, Responsive UIs, Interoperability, Turbine, Espresso, Push Notifications (FCM)
- **Web Development**: JavaScript, TypeScript, React, Chakra, Bootstrap, jQuery, RESTful API Design
- **Cloud Computing & DevOps**: Docker, CI/CD
- **Data Science & Machine Learning**: PyTorch, TensorFlow, Scikit-learn, Keras, Pandas, NumPy, Matplotlib, Seaborn
- **Testing & Quality Assurance**: Unit Testing, Integration Testing
- **Other**: Git, Unity, Linux, OOP, SOLID, Agile

## CERTIFICATES

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- Completed certification in "*Trustworthiness in Deep Learning*", focusing on model reliability, fairness, and interpretability *(Aug 2024)*.

## VOLUNTEERING

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- 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

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- 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

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