# MOHAMMADREZA HEYDARIAN

**Full-Stack Software Engineer | Final-Year PhD Candidate**

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## PROFESSIONAL SUMMARY

Full-stack software engineer and final-year PhD candidate with 6+ years of experience building backend, web, and mobile systems. Experienced in Python, JavaScript frameworks, SQL, and end-to-end software development. Strong background in scalable systems, research-driven engineering, and translating complex problems into production-ready solutions. Seeking full-stack or backend-focused software engineering roles, with strong interest and adaptability to expand into areas such as AI engineering and applied machine learning.

## TECHNICAL SKILLS

**Programming Languages:** Python, JavaScript, Java, C++, C, PHP
**Backend:** Node.js, REST APIs, API design, service architecture
**Frontend:** React Native, Angular, Android (Java), HTML, CSS
**Databases:** SQL, SQLite, MongoDB
**Tools & Platforms:** Git, Linux, Docker
**Other:** OpenCV, Arduino, embedded / IoT systems

## PROFESSIONAL EXPERIENCE

**PhD Researcher** **Sep 2022 - Present**
Ghent University - imec

- Developed optimization and control algorithms for industrial wireless networks, focusing on MIMO-based Time-Sensitive Networking (TSN).
- Designed and implemented a modular simulation framework in Python to model wireless channels, physical environments, mobility, and traffic behavior.
- Achieved up to 300% improvement in network capacity for TSN traffic through advanced scheduling and resource allocation strategies.
- Authored 1 peer-reviewed journal publication; 2 additional manuscripts under review and 1 in preparation.

**Full-Stack Developer** **Nov 2019 - Aug 2022**
Center for Infrastructure Sustainability and Resilience Research, Sharif University

- Designed and developed a building information collection platform across backend (Node.js, MongoDB, SQLite), mobile (React Native), and web admin panel (Angular).
- Implemented end-to-end features across the full development lifecycle, including backend services, API integration, and frontend interfaces.
- Deployed and maintained a production system used by 40+ surveyors and administrators.

**Full-Stack Developer** **Nov 2018 - Nov 2019**
Monta - E-learning Platform

- Developed native mobile applications for Android and iOS, implementing UI components and integrating backend APIs using Java (Android) and React Native.
- Contributed to backend development by implementing server-side features in Java.
- Delivered a production platform serving 50K+ active learners.

**Front-End Developer** **Jul 2018 - Nov 2018**
TIK - Education Consultation Platform

- Developed a web-based admin panel for teacher and student management using Angular, including UI components and backend API integration.
- Delivered a production system adopted by 10K+ students and education consultants.

**Full-Stack Developer** **Feb 2017 - Mar 2018**
Intelligent Information Solutions, Sharif University

- Developed backend and frontend components for a social network platform (Motoshub) using JavaScript, PHP, and Android (Java).
- Contributed to a nationally recognized project adopted by the Iranian Ministry of Higher Education.

**Android Developer** **Apr 2016 - Feb 2017**
Viratech Sharif (Gandom Team)
- Developed and released multiple Android applications using Java for production use.
- Delivered applications adopted by 5K-20K users.

**Freelance Android Developer** **Jul 2014 - Apr 2016**
Independent
- Developed and published multiple Android applications.
- Built messaging systems and training applications.

## SELECTED PROJECTS

**IoT Smart Home Monitoring and Control System**
- Designed and built an IoT-based smart home system using ESP32, Raspberry Pi, and environmental sensors.
- Developed embedded software with Arduino/C++ for wireless sensor data collection and transmission.
- Implemented server-side control logic to automate devices such as lighting and radiator valves based on real-time sensor data.

**Investment Fund Reporting Telegram Bot**
- Built a Python-based Telegram bot for investment fund reporting with Google Sheets integration, automated PDF report generation, and admin/user workflows.
- Implemented features for portfolio updates, activity tracking, document delivery, and audit logging.
- Structured the application using a layered, service-oriented architecture to improve maintainability, testability, and extensibility.

**Vision-Based Drone Guidance System**
- Developed an Android-based drone guidance system for civilian and emergency-response scenarios, aimed at making drone operation more accessible for non-expert users.
- Implemented computer vision and signal detection with OpenCV to track a visual guidance marker and translate it into control inputs.
- Integrated the DJI SDK to enable real-time drone control from an Android application.

**Android VoIP Client Using PJSIP**
- Developed an Android VoIP client by compiling, embedding, and debugging the PJSIP stack for mobile integration.
- Implemented core client functionality for use within a VoIP telephony system using Java (Android) and C.

**Locksmith Dispatch Platform**
- Built a full-stack dispatching system including backend services, a mobile app (React Native), and an admin panel (Angular).
- Designed the platform to connect customers with locksmiths and support service request management and dispatch operations.

## EDUCATION

**PhD in Computer Science Engineering** **Sep 2022 - Present**
Ghent University
- Thesis: Software-Based Networking for 6G
- Focus: Time-Sensitive Networks, mmWave MIMO, wireless systems

**MSc in Computer Science Engineering** **Sep 2016 - Dec 2018**
Sharif University of Technology
- Thesis: A Real-Time and Energy-Efficient Infrastructure for Computation Offloading in IoT

**BSc in Computer Science Engineering** **Sep 2012 - Sep 2016**
Iran University of Science and Technology
- Final Project: Smart Training and Flashcard Formation System

## LANGUAGES

**English:** C2 (TOEFL 119/120) | **Dutch:** B1 (CVO Groeipunt) | **Persian:** Native | **Kurdish:** Native

## HONORS & AWARDS

- Ranked 36th out of 30,000 candidates (~top 0.2%) in the Iranian National Graduate Entrance Exam (Master's level).
- Ranked 126th out of 250,000 candidates (~top 0.05%) in the Iranian National University Entrance Exam (Bachelor's level).
- Ranked 1st (High School) and 2nd (Middle School) in provincial entrance exams for the National Organization for Development of Exceptional Talents (NODET / Sampad).