# M. SALEH DEHQANPOUR

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## HIGHLIGHTS

- Demonstrated diligence as a student at Sharif University's EE department, the most competitive and highest-ranking engineering department in Iran, achieving GPAs of 3.9 as a BSc student and 4.0 as an MSc student.
- Hard-working and detail-oriented researcher with applied skills, resulting in an MSc thesis in the field of 360-degree video quality assessment.
- Mentor and educator in both academic (lab assistant and grader experiences as TA) and industrial settings (hiring and leading a team of 4 fresh engineers).
- Seasoned software engineer with 4+ years of professional experience in a range of diverse fields – from embedded systems and DevOps up to frontend and backend web development – in both a big corporation and a nascent start-up.

## RESEARCH INTERESTS

- Applied Machine Learning
- Computer Vision
- Deep Learning
- AI in Systems and Cloud Computing
- Video Processing & Quality assessment

## EDUCATION

**M.Sc. in Electrical Engineering, Digital Systems**
*Sharif University of Technology*
*Tehran, Iran*
*2018 - 2021*

- GPA: **18.69 / 20 (4 / 4)**
- Ranked **3rd** among 19 students in the digital systems field and 10th among all 143 students in the major
- Thesis:
  - Analysis and development of quality assessment methods of 360 videos
  - Supervisor: Dr. Sharifkhani

**B.Sc. in Electrical Engineering, Digital Systems**
*Sharif University of Technology*
*Tehran, Iran*
*2014 - 2018*

- GPA: **18.58 / 20 (3.90 / 4)**
- Ranked **3rd** among 25 students in the digital systems field and 16th among all 171 students in the major
- Thesis:
  - High-speed crossbar cell switching implementation using iSLIP algorithm on FPGA
  - Supervisor: Dr. Pakravan

## RESEARCH PROJECTS

**A New Video Quality Assessment Method for 360-Degree Videos**
*MSc Thesis*
*2019-2020*

- Designed a new Video Quality Assessment method for 360-degree videos by extracting a set of viewports (2D videos) and applying several traditional quality metrics.
- Employed a Random Forest algorithm to determine the optimal weights of these metrics.
- Achieved a PLCC (correlation) to subject scores of 7% higher compared to the latest published results on the same dataset.

**High-Speed Crossbar Cell Switching Implementation using Islip Algorithm on FPGA** *BSc Thesis*
*2017-2018*

- Implemented a VOQ crossbar cell switching fabric using the iSLIP scheduling algorithm.
- Utilized Verilog for synthesis at the RTL level and verified it using test benches in Xilinx's ISE and the ModelSim simulator.

**Design and Implementation of a 360° Video Viewport-Adaptive Streamer and Player** *Sharif U. of Tech.*
*2021*

- Utilized TSP projection to encode multiple video versions, which were then presented to the client in a format similar to the HLS manifest.
- Developed an Android app that continuously tracks its orientation and requests the appropriate video representation. This ensures the highest quality display in the viewport, even if it compromises the quality in other regions.

## TEACHING EXPERIENCES

- Lab TA of ASIC-FPGA System Design, Dr. Shabany, 2018.
- Lab TA of Computer Architecture, Dr. Bagheri Shouraki, 2018.
- Parallel Programming and Structure, Homework Designer and Grader, Dr. Hashemi, 2019.

## WORK EXPERIENCES

**Software Engineer and Team Lead** *Netbox*
*2021 - present*

- Netbox is a thriving startup that specializes in the production of Android TV boxes. It also provides online entertainment services on TV, which are currently being used by more than 20,000 users.
- Joined in its early days and contributed to a variety of projects. This included customizing the Android source code (AOSP) to align with our requirements and developing an Android TV app for a Video on Demand Service.
- Designed, developed, and deployed the **entire backend and infrastructure** of the company, consisting of five major services, including Video on Demand, Audio on Demand, and an app store. Each of these services is competing with their global counterparts (such as Spotify and The Roku Channel) tailored for Iranian people.
- Recruited, mentored, and **led a team of junior backend developers**, playing a pivotal role in the startup's growth by facilitating the expansion of our services.

**Software Developer** *Asiatech*
*2019 - 2021*

- Asiatech is an Internet Service Provider in Iran with over 1 million users.
- Developed and maintained IT systems, which included Single Sign-On (SSO with OpenID Connect), Business Support System (BSS), API Gateway, and more.
- Reviewed thousands of lines of code in Python, Java, T-SQL, Go, C#, and JavaScript, to learn the company's undocumented business logic. This experience **taught me to comprehend large and diverse codebases**.
- Restored the company's outdated **Kubernetes cluster** by establishing a new one and migrating all system components. That was an experience of learning a new technology (K8s) **in under two weeks**.
- Optimized API Gateway by using Golang's buffered channels instead of a dedicated message queue (Kafka), thus freeing up 3 servers that were used for the Kafka cluster.

## HONORS AND AWARDS

- Ranked 18th among more than 220,000 contestants in the Iran nationwide university entrance exam, Mathematics & Physics, 2014.
- Admitted as a talented student exempted from the M.Sc. entrance exam, 2018.
- Granted Membership of the National Elite Foundation of Iran, 2014.

## ENGLISH & GRE TESTS

- GRE General: **Q: 170; V: 157**; AW: 4.0 (October 11, 2023)
- **IELTS (Academic): 8.0**
  - Listening: 9.0, Writing: 7.5, Speaking: 7.0*, Reading: 9.0 (May 24, 2023)

*: Also took an IELTS General test resulted in a score of 7.5 in speaking and **8.5 overall** (test date on Aug 17, 2023)

## SKILLS

- **Programming Languages**: Python, SQL, JavaScript, CUDA
- **Database Management**: PostgreSQL, MySQL
- **Machine Learning**: sklearn, PyTorch
- **Data Extraction and Web Crawling**: Scrapy, Selenium
- **Deployment**: CI/CD (GitHub Actions), Docker, Kubernetes, Shell scripting
- **Video Processing**: FFmpeg, 360Lib
- **Web development**: Django, React, .Net
- **Mobile app**: Android, PWA

## SELECTED COURSES AND GRADES

- Introduction to Machine Learning A+
- Statistical Learning* A+
- Distributed Systems* A+
- Data Compression* A+
- Digital Signals Processing A+
- Advanced Programming A+
- Data Communication Networks* A+
- Parallel Programming and Structures* A

*: graduate

## References are available upon request