SHAYAN HOSSEINI

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RESEARCH INTERESTS

- Distributed Systems
- Data Structures and Algorithms
- Computer Systems and Networks
- Programming Languages and Formal Methods

EDUCATION

University of Tehran, Tehran, Iran   2015 - present
Undergraduate student of B.Sc. in Software Engineering

- Final year GPA: 19.15/20, Current GPA: 17.28/20

- Related Courses: Design and Analysis of Algorithms (20/20), Data Structures and Algorithms (19.8/20), Theory of Formal Languages and Automata (19.5/20), Algorithmic Graph Theory (18.5/20), Network Security (20/20), Computer Networks (18.1/20), Compilers and Programming Languages (19.55/20)

Allameh Helli High School, Tehran, Iran   2011 - 2015
Affiliated with the National Organization for the Development of Exceptional Talents (NODET)
Diploma in Mathematics and Physics Discipline

RESEARCH EXPERIENCE

Research Intern at Max Planck Institute for Informatics, Saarbrücken, Germanry Summer 2019
Under supervision of Prof. C. Lenzen
Member of algorithms and complexity group. I was working on the fault-tolerant routing problem with strong fault types.

Undergraduate Research Assistant at University of Tehran, Tehran, Iran   2019-Present
Under supervision of Prof. B. Bahrak
Member of data analysis lab, working on various graph problems.

AWARDS AND HONORS

ACM ICPC, International Collegiate Programming Contest by ACM.

- **56th Team** in the 41th ACM ICPC World Finals, South Dakota, USA   2017

- **3rd, 2nd, 2nd, 9th Team** in Regional Contests of ACM ICPC West Asia Region, Tehran site, respectively in 2018, 2017, 2016 and 2015.

Silver Medal in the 24th Iranian National Olympiad in Informatics   2014

Medals awarded to 40 people after a year of competition between over 10000 students from all the country.

Member of **National Elites Foundation**, Iran   2014 - persent

TEACHING EXPERIENCE

Teaching Assistant
University of Tehran

- **Head TA**, Design and Analysis of Algorithms, H. Mahini   Spring 2019, Fall 2018, Spring 2018
- Computer Networks, A. Khonsari   Spring 2019
- Engineering Probability and Statistics, B. Bahrak   Fall 2018
- Advanced Programming, R. Khosravi, A. Sadeghi   Fall 2017
- Discrete Mathematics, S. Mohammadi   Spring 2017
- Data Structures and Algorithms, H. Feili   Fall 2016

INOI and ACM ICPC related

Teaching topics in computer science including Algorithms, Data Structures, and Graph Theory to undergraduate students preparing for ACM ICPC as well as high school students preparing for INOI.

- University of Tehran   2017
- INOI Summer Camp, at Young Scholars Club   2015
- Allameh Helli High School   2015

PROFESSIONAL EXPERIENCE

Technical Lead and Product Manager at Cafebazaar, Tehran, Iran   2017 - 2019

Member of the infrastructure team. Aiming to provide high available and scalable services to other technical teams. Leading a team of 8 people inside this group. I'm one of the co-founders of Cafebazaar Cloud, which is a subsidiary of Cafebazaar that provides public cloud services to the other companies.

- Designed and developed a distributed Object storage service using Ceph, named Kise. Now it serves a large amount of data and responds to more than hundreds of requests per second. Cafebazaar, Divar, and Balad are using Kise heavily in production.
- Designed and developed a new architecture for our Content Delivery Network to use cache servers and IP Anycast network.
- Designed and developed a new software architecture for the CDN nodes to be dynamically configurable and multi-tenant.
- Designed and developed a smart DNS server for CDN traffic load balancing before we migrated to Anycast.
- As a Product Manager, responsible for:
  - Determining the team's vision, OKRs, stories, and tasks.
  - Collaborating with other technical teams and companies.
- As a Tech Lead, responsible for deciding on technical problems, developing and maintaining these services.

Software Engineer at Cafebazaar, Tehran, Iran   2015 - 2017

Cafebazaar is the most popular Android application store in Iran, with more than 35 million users.

- Member of the app acquisition team, working on application download and payment system.
- System owner of CDN and parts of Cafebazaar back-end. Responsible for code reviews and the systems to be available, scalable and maintainable.
- Responsible for interviewing new software engineer candidates and improvement of the technical interview process.

Software Developer at Sabz Biomedicals, Tehran, Iran   Summer 2015
Developed software of Gel Documentation System (an instrument for high-quality visualization and recording of DNA bands). Implemented image processing part of the application for detecting DNA bands in a picture.

PROFESSIONAL DEVELOPMENT

The following online courses were taken to acquire skills relevant to my work and research:

- **Cloud Computing Concepts**, by University of Illinois at Urbana-Champaign, coursera.org

- **Bitcoin and Cryptocurrency Technologies**, by Princeton University, coursera.org

- **Game Theory**, by Stanford University and UBC, coursera.org

NOTABLE PROJECTS

Compiler Course Project   2018
Implemented a compiler for a new object-oriented programming language, named Smoola. This is done by compiling Smoola code to Java bytecode.

Network Course Project   2018
Designed an algorithm for detecting topology of an unknown network; Used Floodlight SDN OpenFlow Controller.

Operating Systems Course Project   2017
Implemented the system call handler and an efficient CPU scheduler for communicating to many IO devices for Pintos.

Limoo   2017
A desktop application that shows lyrics for the current playing song, server in Go and client in Python.

CAPTCHA Farsi   2011-2012
Generating CAPTCHA in Persian by using image processing and calligraphy methods. Can be used in Persian websites. Awarded as Best Project in 8th NODET Young Researchers Festival.

SKILLS AND QUALITIES

Theoretical Background: Expert in Design of Algorithms, Data Structures, and Discrete Mathematical fields such as Graph Theory and Combinatorics suggested by awards in ACM ICPC and Olympiad in Informatics.

Languages and Tools: Expert in C/C++, Go, Python, Bash-Scripting, Pascal, SQL, Git. Working knowledge in Java, Lua, Javascript, Verilog, LaTeX.

Software Engineering: Familiar with different object-oriented design patterns, software development methodologies such as Agile and DevOps and, functional programming.

Web Application Development: Comfortable with Django, Flask, CSS3, HTML5 and ReactJS.

Site Reliability Engineering: Managed scalability and maintainability challenges in several web applications having thousands of requests per second. Expert Linux user and experienced in system administration. Experience in Ceph storage platform, Kubernetes, Docker, NGINX, Computer Networks.

Languages: English (Full professional proficiency), Persian (Native)

Other: Creative, self-motivated, eager to learn new things. Communicative and collaborative with the ability to work both independently and in a team.