Sina **Kamali**

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"Solving problems is the goal, no matter how large they are."

Education

College of Electric and Computer Engineering, University of Tehran *Tehran, Iran*

B.Sc. in Computer Engineering (Software Engineering major) *Sep. 2018 - present*

- Cum. GPA: 18.31/20 (3.91/4 in the U.S. GPA system)
- Related Courses: Cryptocurrency(19.7/20) · Computer Networks(18.3/20) · Engineering Probability and Statistics(18.6/20) Internet Engineering(19.4/20) · Discrete Mathematics(20/20) · Data Structures(20/20) · Advanced Programming(19.7/20)

Allame Helli 4 High School *Tehran, Iran*

Diploma in Mathematics and Physics *2012 - 2018*

- GPA: 19.81/20
- As a part of the National Organization for Development of Exceptional Talents (NODET)

Research Interests

- **Computer Security & Computer Network Security**
- **Blockchains & Cryptocurrency**
- **Cryptography**
- **Computer Networks & Distributed Systems**

Publications

Sina Kamali, Taha Fakharian, Shayan Shabihi, Alireza Arbabi, Mohammad Saadati, Pouriya Tajmehrabi, & Behnam Bahrak. (2022) **"RPoA: Redefined Proof of Activity"**. Submitted.

Research Experience

Under the supervision of Prof. P. Shariatpanahi *University of Tehran*

Research Assistant *Jun. 2022 - present*

We are researching the possibility of an attack on networks that use the combination of PoS-based protocols and DAG-based network protocols, to prove that using PoS in its current state with some DAG-based network protocols like SPECTRE is insecure.

Under the supervision of Prof. B. Bahrak *University of Tehran*

Research Assistant *Aug. 2021 - present*

We are working on an alternative consensus protocol based on Proof of Activity to combine the benefits of using both the PoS and PoA protocols. We have watched a series of courses and read an abundant number of papers on similar ideas. The research has been finished and is currently being finalized.

Teaching Experience

University of Tehran ACM Student Chapter

Cryptocurrency Course Instructor Summer of Code *Jul. 2021 - Nov. 2021*

University of Tehran

Supervising Teaching Assistant Discrete Mathematics, Prof. S. Mohammadi *Sep. 2021 - Aug. 2022*
Teaching Assistant Discrete Mathematics, Prof. S. Mohammadi *Jan. 2020 - Sep. 2021*
Teaching Assistant Computer Networks, Prof. N. Yazdani *Aug. 2022 - present*
Teaching Assistant Data Structures, Prof. H. Faili, Prof. F. Faghih *Sep. 2020 - Aug. 2022*
Teaching Assistant Software Engineering, Prof. R. Khosravi *Aug. 2022 - present*
Teaching Assistant Software Testing, Prof. E. Khamespanah *Aug. 2022 - present*
Teaching Assistant Artificial Intelligence, Prof. M. Moradi, Prof. Y. Yaghoobzadeh, H. Fadaei *Jan. 2021 - Aug. 2022*

Honors & Awards

2020 **President**, University of Tehran ACM Student Chapter — *Tehran, Iran*
2018 **Ranked 281 (Top 0.2%) in Konkour**, National Organization of Educational Testing (NOET) — *Tehran, Iran*
2018 **Becoming a member**, Iran's National Elites Foundation (INEF) — *Tehran, Iran*
2018 **Received scholarship**, Supporter Foundation of the University of Tehran — *Tehran, Iran*

Professional Developements

Bitcoin and Cryptocurrency Technologies, Prof. Arvind Narayanan
Princeton University, Coursera

An online cryptocurrency course — *2020 - 2021*

During this course, which was part of the master's program at Princeton University, I learned fundamental concepts regarding Bitcoin and other cryptocurrencies. I learned about how they achieve decentralization(!), how mining is done, alternative consensus protocols, etc. During this course, I implemented a simple blockchain network.

Crystaline
University of Tehran

A cryptocurrency powered by a redefined PoA protocol — *Aug. 2021 - Sep. 2022*

Developed as a proof of concept on pure Python, this cryptocurrency incorporates a newly defined Proof of Activity as its primary consensus protocol. It was designed and researched by me and several other students of the University of Tehran.

DMCB
University of Tehran

The moderator for DM contests of University of Tehran — *Jun. 2022 - Aug. 2022*

Developed as a moderator for the discrete mathematics course at the University of Tehran. DMCB was created using the Django framework.

Mini Kaggle
Divar

A Kaggle clone made by interns at Divar — *Jun. 2021 - Sep. 2021*

A Kaggle clone made using the Django framework as a learning project at Divar in the summer of 2021. We used several software developing tools and libraries including Docker, Celery, Pandas, and etc. I learned how to effectively work as a software development team during this time.

Sins & Virtues
University of Tehran

A text-based game created as a passion project — *Feb. 2021 - present*

Developed as a passion project. At first, it was programmed using Python, but after further consideration, it was rewritten using C++. The game encapsulates a rich set of fun mechanics. Follow this link to learn more.

Work Experience

Sotoon
Tehran, Iran

Software Developer — *Jan. 2022 - Aug. 2022*

- Worked on deploying older software on Docker Swarm and Kubernetes clusters. Worked on the official "Sooton Cli" programmed using GoLang. Learned a great deal about working as a team in software development and the agile methodology.

Divar
Tehran, Iran

Software Developer Intern — *Jul. 2021 - Sep. 2021*

- Learned a wide variety of software development tools in the workshops held by Divar. Some of these tools were Git(Professional), RPC protocols, Django Framework, Kubernetes, SQL, NO-SQL databases, etc. Furthermore worked on a small project in which we developed a Kaggle clone from scratch.

Notable Academic Projects

Smart Debt Handler
Cryptocurrency

A smart contract made using Solidity

A smart debt handler similar to Splitwise, which tracks users' debts and updates them based on the loops users create between each other.

BTC Address Maker
Cryptocurrency

An Address maker made using pure Python

This project was developed to further understand the math and explicit details of creating a key pair. This project can make any kind of famous key pairs in either the test net or the main net.

FTP Server
Computer Networks

A fully functioning FTP server

A fully functioning FTP server with many capabilities implemented in C++ that uses socket programming to communicate with clients at a low level.

IEMDB *Internet Engineering*

A fully functioning IMDB clone

A complete implementation of a website from scratch by me and my teammate. This project was developed using Java and Spring for the back-end, and React for its front-end. We have used tools like CI/CD pipelines, JDBC, JUnit, Github Oauth apps, etc.

Network Function Simulation *Computer Networks*

A simulation of network functions

A complete simulation of network functions created using C++. It supports various network components and uses multi-threading to run the simulations simultaneously.

Multi-Threaded Prediction *Computer Networks*

A multi-threaded C program that predicts prices based on trained regression data

This project was created to toy with multi-threading concepts and to get more familiar with them.

Skills

Programming	High Intermediate: C++, Python, GoLang Intermediate: C, Java, Javascript, Solidity Beginner: Rust, Bash, LaTeX
Technologies	Git, Docker, Docker Swarm, Kubernetes, Ansible, Makefile
Software Engineering	Familiar with multiple object-oriented design patterns. Efficient with function-based designs. Fully familiar with Agile development and its concepts.
Web Development	Django, Django Rest, React, Spring
Operating Systems	Linux (Debian-based and Arch-based), MacOS

Languages

Persian Native

English Professional working proficiency · **TOFEL: 113/120 [R:30, L:30, S: 26, W:27] (Oct. 2022)**