# 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

- Blockchains and Cryptocurrency
- Cryptography
- Computer Network Security
- Computer Networks

## Publications

Sina Kamali, Taha Fakharian, Shayan Shabihi, Alireza Arbabi, Mohammad Saadati, Pouriya Tajmehrabi, Behnam Bahrak. "RPoA: Redefined Proof of Activity". To be Published.

## 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

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|---|---|
| **Programming** | High Intermediate: C++, Python, GoLang<br>Intermediate: C, Java, Javascript<br>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:** Test date: October 15, 2022