

# MIRZA KAMRUL BASHAR SHUHAN

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[shuhanmirza.com](https://shuhanmirza.com) | [shuhanmirza.medium.com](https://shuhanmirza.medium.com) | [Google Scholar](https://scholar.google.com/citations?user=shuhanmirza) | [ResearchGate](https://orcid.org/0000-0001-9461-1128)

## RESEARCH INTERESTS

Distributed Systems, Security & Privacy, Cryptography, Blockchain

## EDUCATION

### BSc. in Computer Science and Engineering

March 2019

Shahjalal University of Science and Technology (SUST)

CGPA: 3.83/4.00 (Major CGPA 3.93/4.00) (Class Rank 3rd out of 55)

Co-curricular Activities: Hackathons, Competitive Robotics

Thesis: “Decentralised Identity Federations using Blockchain” under supervision of [Dr. Md Sadek Ferdous](#). [U1.]

## PUBLICATIONS

### Conference Publications

- C1. **MKB Shuhan**, T Islam, E A Shuvo, F H Bappy, K Hasan and C Caicedo, “**Quarks: A Secure and Decentralized Blockchain-Based Messaging Network**,” 2023 IEEE 10th International Conference on Cyber Security and Cloud Computing (CSCloud)/2023 IEEE 9th International Conference on Edge Computing and Scalable Cloud (EdgeCom), Xiangtan, Hunan, China, 2023, pp. 268-274, doi: [10.1109/CSCloud-EdgeCom58631.2023.00053](https://doi.org/10.1109/CSCloud-EdgeCom58631.2023.00053)
- C2. **MKB Shuhan** R Dey, S Saha, MSU Anjum, TS Zaman, “**A Stylometric Dataset for Bengali Poems**,” In 2022 6th International Conference on Natural Language Processing and Information Retrieval (NLPIR 2022), December 16–18, 2022, Bangkok, Thailand. ACM, New York, NY, USA, 5 pages. doi: [10.1145/3582768.3582788](https://doi.org/10.1145/3582768.3582788)
- C3. I Alom, RM Eshita, AI Harun, MS Ferdous, **MKB Shuhan**, MJM Chowdhury, MS Rahman, “**Dynamic Management of Identity Federations using Blockchain**,” 2021 IEEE International Conference on Blockchain and Cryptocurrency (ICBC), Sydney, Australia, 2021, pp. 1-9, doi: [10.1109/ICBC51069.2021.9461128](https://doi.org/10.1109/ICBC51069.2021.9461128).
- C4. US Jannat, SM Hasnayeem, **MKB Shuhan** and MS Ferdous, “**Analysis and Detection of Malware in Android Applications Using Machine Learning**,” 2019 IEEE International Conference on Electrical, Computer and Communication Engineering (ECCE), Cox’sBazar, Bangladesh, 2019, pp. 1-7, doi: [10.1109/ECACE.2019.8679493](https://doi.org/10.1109/ECACE.2019.8679493).

### Under Review Publications

- U1. **MKB Shuhan**, SM Hasnayeem, TK Das, MN Sakib and MS Ferdous, “**Decentralised Identity Federations using Blockchain**,” [arXiv:2305.00315](https://arxiv.org/abs/2305.00315)

### Ongoing Research

- O1. “Tau: A Blockchain-based Invoice Network”

## PROFESSIONAL EXPERIENCE

bKash Limited

Dhaka, Bangladesh

**Assistant Lead Software Engineer**, Research & Engineering Dept.

May 2023 – Present

- Involved in all phases of agile including the requirements analysis, architecture design, development, testing, deployment, and ongoing support for the bKash customer app which has a user base of over 70 million.
- Coordinated the development of multiple features by managing and mentoring junior engineers, ensuring timely delivery by efficient teamwork.
- Led the implementation of the VPN detection service, substituting a 50k dollars/year third-party service.
- Tech Skills: Java, Golang, Spring Boot, AWS, Docker, Redis*
- Soft Skills: Management, System Design, Timely Delivery, Prioritization*

**Senior Software Engineer**, Research & Engineering Dept.

April 2021 – April 2023

- Enhanced PIN security by redesigning encryption methods and implementing a Vue component and Spring Boot API. The solution was later integrated into 3 additional products, optimizing their security measures.
- Resolved high-severity security bugs in credential encryption and API authorization through comprehensive code reviews, ensuring robust protection of sensitive data.

- Formalized Data Pipe-Lining which is used by 40+ micro-services by developing a library using Spring AOP.
- *Tech Skills: Java, Golang, Javascript, Python, Spring Boot, Vue, AWS, Docker, Redis*
- *Soft Skills: System Design, Timely Delivery*

Progoti Systems Limited

Dhaka, Bangladesh

**Software Engineer**

September 2019 – March 2021

- Implemented key features such as merchant sign-up, login, PIN setup, PIN management, user referral, SureCash wallet integration, notification inbox, and settings within the Android app and Django API of TallyKhata.
- Streamlined the testing process by incorporating Firebase Test Lab into the software development life-cycle (SDLC), resulting in substantial time and effort savings.
- *Tech Skills: Java, Python, Android, Django, PostgreSQL, Docker, Redis*

## RESEARCH EXPERIENCE

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Grönska Stadsodling

Sweden

**Consultant**

Oct 2020 – Feb 2021

- Contributed to system design and interfacing their EU funded Automated Indoor Vertical Farming system named GrowOff.

Cryptic Consultancy Limited

United Kingdom

**Research Engineer**

Mar 2020 – Mar 2021

- Spearheaded the research and development of the MVP version of an enterprise blockchain solution designed for a financial institution using Hyperledger Fabric.

Blockchain and Security Lab (SUBSeL), Shahjalal University of Science & Technology

Sylhet, Bangladesh

**Research Assistant**

Mar 2019 – Feb 2020

- Contributed to the research and development of a university-funded project focused on Blockchain and Identity management. [C3.]
- Single-handedly configured and deployed the Infrastructure as a Service (IaaS) in the lab's server.

## SERVICE

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Conference Review

- 1st IEEE International Workshop on Cryptocurrency Exchanges (CryptoEx) 2023
- 6th International Conference on Blockchain Technology and Applications (ICBTA) 2023
- 4th & 5th International Congress on Blockchain and Applications (BLOCKCHAIN), 2022 & 2023

Journal Review

- International Journal of Network Management (IJNM)

Distinguished Juror

- Blockchain Olympiad Bangladesh (BCOLBD) 2023
- Robot Olympiad Bangladesh (BdRO) 2020, 2021, 2022 & 2023

## SELECTED OPEN SOURCE PROJECTS

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**Quarks** | Go, JavaScript

[github.com/shuhanmirza/quarks-network](https://github.com/shuhanmirza/quarks-network)

- Developed this Proof-of-Concept using Hyperledger Fabric for our research paper titled "Quarks: Secure and Decentralized Blockchain-Based Instant Messaging Network". [C1.]

**SimplePdfGenAPI** | Java, SpringBoot

[github.com/shuhanmirza/SimplePdfGenAPI](https://github.com/shuhanmirza/SimplePdfGenAPI)

- PDF Generator REST Service that can be deployed out of the box. It can generate PDFs from LaTeX and HTML Templates.

**Surelink** | Go, Javascript | [surel.link](https://surel.link)

[github.com/shuhanmirza/surelink](https://github.com/shuhanmirza/surelink)

- Safe URL shortening service with transparency in mind. It shows a link preview before forwarding.
- Developed backend using Gin Gonic and frontend using VueJs. Utilized PostgreSQL and Redis.

**SUSTCast** | Java, Python | [App](https://App)

[github.com/sustcast/sustcast](https://github.com/sustcast/sustcast)

- Fully automated online radio platform servicing over 2000 students of SUST.
- Developed mobile application using Android Java and backend service using Python3. Utilized Firebase real-time database for storage and IceCast for broadcasting audio.

**Cryptography online tool** | JavaScript | [Web](https://Web)

[github.com/shuhanmirza/cryptography-online-tool](https://github.com/shuhanmirza/cryptography-online-tool)

- Website for trying out different cryptographic algorithms.
- Developed frontend using VueJs.

More on my GitHub [github.com/shuhanmirza](https://github.com/shuhanmirza)

## SELECTED AWARDS

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### International

- *Award of Merit* in the International Blockchain Olympiad 2021 out of 600+ teams worldwide. [C1.]
- *Award of Merit* in the International Blockchain Olympiad 2020 out of 350+ teams worldwide. [O1.]
- *Finalist* in the International Autonomous Robotics Challenge 2016 organized by IIT Kanpur.

### Professional

- *Travel Grant* for presenting the published research paper sponsored by bKash limited at the NLPiR 2022. [C2.]
- *bKash STAR Award*, 2021 for time-to-market delivery of bKash Business Dashboard.

### National

- *Best Prototype Award* in the Blockchain Olympiad Bangladesh 2021. [C1.]
- *Champion* in the ICT fest Hackathon 2017 organized by the Islamic University of Technology.
- *Champion* in the Autonomous Sumo Robot Contest 2016 organized by the North South University.
- *Bronze* in the National Informatics Olympiad 2013.
- *Champion* in the National Science Olympiad 2012.

### Academic

- *Shahjalal University Talent Scholarship*
- *Runners Up* in the Scientific Poster Symposium for senior year students 2018 [U1.]

## SELECTED MEDIA CONVERAGE

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- [HelloFuture Orange] Quarks: decentralized and blockchain-secured instant messaging [C1.]
- [TechXplore] A decentralized, blockchain-based messaging network for safer communications [C1.]

## SELECTED LEADERSHIP EXPERIENCE

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SUSTCast - Online Radio Station of Shahjalal University of Science & Technology

### Founding Team Lead

2018 - 2019

- Initiated the project to make a completely automated internet radio service.

RoboSUST - Robotics club of Shahjalal University of Science & Technology

### General Secretary

2017 - 2018

- Initiated the Project: *AutoMama (Autonomous Shuttle)* which got the Shahjalal University Grant of 150K BDT (\$1400).
- Spearheaded several workshops, tech sessions, and inter-university competitions to foster the skill development of the students.

IEEE International Conference on Bangla Speech and Language Processing (ICBSLP)

### Lead Organizer

2018

- Oversaw the preparation of the budget and procurement to prepare the venue and refreshments.
- Led the volunteer team to prepare and manage the conference venue attended by over 600 scholars.

CSE Carnival - Annual inter-collegiate technical festival, Shahjalal University of Science & Technology

### Lead Organizer

2017

- Prepared the problem statement of the Sumo Robot Competition.
- Spearheaded the preparation of the budget and procurement for the Sumo Robot Competition.
- Led the volunteer team to organize the Robotics Competition which was participated by 40+ teams nationwide.

## SELECTED CERTIFICATIONS

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- Certified Blockchain Architect™ | Issued by Blockchain Council
- Certified Payment Industry Security Implementer - Developer (CPISI-D) | Issued by SISA

## TECHNICAL SKILLS

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**Languages:** Java, Go, Python, JavaScript, Shell

**Frameworks:** Spring Boot, Gin Gonic, Vue, Django, Fastapi, Android

**Databases:** DynamoDB, PostgreSQL, SQLite, Firebase, Redis

**Cloud:** AWS (EC2, Lambda, S3, SQS, KMS, Cognito, Kinesis), Hetzner

**Blockchain:** Hyperledger Fabric, Hyperledger Explorer

**IoT:** Atmel AVR, Arduino, NodeMCU, Raspberry Pi

**OS:** Ubuntu, Lubuntu, CentOS, Raspbian

**Tools & Libraries:** Docker, Git, Selenium, SimpleSAMLpHp, JMeter, Zimlet, JQuery

## REFERENCES

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**Dr. Md Sadek Ferdous**

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Department of Computer Science and Engineering  
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