



Martin Farkas

Date of birth: 2000/12/01 | **Nationality:** Hungarian | **Phone:** (+36) 204374659 (Mobile) | **Email:** fmartin0120@gmail.com | **LinkedIn:** [linkedin.com/in/MartinFarkasCS](https://www.linkedin.com/in/MartinFarkasCS) | **GitHub:** github.com/BlackLight54

● ABOUT MYSELF

Skilled and dedicated Computer Science student specializing in System Engineering and development of fault-tolerant software utilising Modern Service Platforms, bringing forth expertise in design, integration, deployment, testing, and maintenance of systems and applications.
Proficient in technologies and methods for creating, testing, deploying, and maintaining privacy-preserving, fault-tolerant, decentralised, and blockchain-based systems. Deep understanding of computer science from logic gates up to high-level languages. Accustomed to working well with others and committed to meeting deadlines and adhering to project guidelines. Can tackle critical problems with a clear mind. Able to effectively self-manage during independent projects, as well as collaborate in a team setting. Skilled in public speaking and presentation.

● WORK EXPERIENCE

BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS – BUDAPEST, HUNGARY

Department Department of Artificial Intelligence and Systems Engineering

RESEARCH ASSISTANT – 2023 – CURRENT

Research into privacy-preserving technologies in blockchain contexts
Development of groundbreaking Zero-Knowledge Proof systems
Education and demonstration in the topic of Self-Sovereign Identities, Distributed Systems, and Blockchain technologies
Mentoring of and consulting with BSc and MSc students.

QUANOPT KFT. – BUDAPEST, HUNGARY

SYSTEMS ENGINEER – 2023

Developed, tested, and deployed a Hyperledger Fabric-based consortial blockchain chaincode for managing usage data of public service infrastructure utilising fablo, java, and docker
Developed, tested, and deployed a swagger-based RESTful API for the previous service using nodejs, express, mocha, chai, and typescript
Carried out a performance measurement campaign for the forementioned system

NAS KFT. – BUDAPEST, HUNGARY

CRYPTOCURRENCY MINING PLATFORM DEVELOPER – 2022

- Prototyped a GPU-based cryptocurrency mining platform utilising Go Ethereum
- Researched and reviewed candidate cryptocurrency mining software
- Did market analysis and demonstrated the relevant design choices regarding a would-be cryptocurrency mining platform

● EDUCATION AND TRAINING

2025 – CURRENT Budapest, Hungary

COMPUTER ENGINEERING, PH.D. Budapest University Of Technology

Website <https://www.bme.hu/> | **Field of study** Model driven design of decentralized trust solutions

2023 – 2025 Budapest, Hungary

COMPUTER ENGINEERING, M.SC. Budapest University Of Technology

Website <https://www.bme.hu/> | **Field of study** IT Security, Critical Systems | **Final grade** Summa Cum Laude |

Thesis Self-Sovereign Identity based Self-Evaluated Policies

In my thesis work, I proposed two payment schemes over the openCBDC transaction platform, utilising the Hyperledger Aries SSI framework

Developed Solidity based Smart-Contracts within an educational project focused on designing, deploying, and load testing an application that manages NFTs on the Ethereum Blockchain and Hyperledger Fabric

Created a load-testing framework for MIT MediaLab's openCBDC (Project Hamilton) in JMeter, in connection with in-house research on a domestic Central Bank Digital Currency

Developed multiple server-side applications, both with REST API-s and HTML, using frameworks from Express.js with NodeJS to Java Spring

Developed single and multi-agent artificial intelligence systems in Python and Jason/AgentSpeak

Developed games and client applications in C, C++, C#, Java, Android, and Flutter

Gained experience with DevOps tools like Git, Docker, Kubernetes, GitHub workflows, Jenkins, SonarQube, Gradle, Maven

Website <https://www.bme.hu/> | **Field of study** System Engineering |

Thesis Self-Sovereign Identity supported payment on the openCBDC platform

2013 – 2019 Győr

HIGH SCHOOL DIPLOMA Révai Miklós Secondary Grammar School

Website <http://www.revai.hu/hun/>

● **PROJECTS**

2024 – CURRENT

Development of CBDC systems in the Cooperation of the Hungarian National Bank (MNB) and the Budapest University of Technology (BME)

Integrating a novel Self-Sovereign Identity (SSI) based Zero-Knowledge Proof (ZKP) protocol into a Central Bank Digital Currency (CBDC) prototype within the Cooperation of the Hungarian National Bank and the Budapest University of Technology based on my own research with the Critical Systems Research group at the Department of Artificial Intelligence and Systems Engineering of the Budapest University of Technology.

2023 – CURRENT

Blockchain task of DigitalTech EDIH at the Budapest University of Technology

Helped the development of coursework for the Blockchain task of DigitalTech EDIH, which is part of European Digital Innovation Hubs initiative of the European Commission. The topics I contributed to included permissioned blockchains and the groundbreaking developments in digital identity management, such as SSI.

2023 – CURRENT

Training SMEs for the Digital Decade (SME4DD)

Helped the development of coursework for the "Training SMEs for the Digital Decade" (SME4DD) EU project. The projects aim was to introduce SMEs to blockchain technology, with all the related fields, such as digital identity management, which was the topic I contributed to.

2023

Blockchain based data storage for smart gas-meters

Lead developer in a DLT-based meter data storage project for a Hungarian gas provider at QUANOPT Kft.

● **CONFERENCES & SEMINARS**

2025/04/23 – 2025/04/25 Budapest, BME VIK

37th National Student Research Conference | Information and Communication Technology Section | Cybersecurity category

Title: Self-evaluated policies using Zero-Knowledge Proofs

Award: 3rd place

Link <https://otdk25.vik.bme.hu/tagozatok/12-kiberbiztonsag>

Title: A Prolog-based Approach to Self-Evaluated, Declarative and Zero-Knowledge Verifiable Policies

Link <https://mascots24.iitis.pl/>

2024/07/03 – 2024/07/05 Szeged, Hungary

CS² - The 14th Conference of PhD Students in Computer Science

Title: Design Space Exploration of Verifiable Credential Schemas using Partial Graph Modeling

Link <https://www.inf.u-szeged.hu/~cscs/program.php>

2023/11 Budapest

Budapest University of Technology Faculty of Electrical Engineering and Informatics Students' Scientific Conference

Title: Self-evaluated policies using Zero-Knowledge proofs

Placement: First place

Link <https://tdk.bme.hu/conference/VIK/2023/sessions/inform2/paper/Onkiertekelo-eljarasrendek-tamogatasa>

2022/11 Budapest

Budapest University of Technology Faculty of Electrical Engineering and Informatics Students' Scientific Conference

Title: Payments in openCBDC with Self-Sovereign Identities – from the verifiable to the private

Placement: Reward

Link <https://tdk.bme.hu/conference/VIK/2022/sessions/inform1/paper/Fizetesek-az-openCBDCben-onszuveren>

LANGUAGE SKILLS

Mother tongue(s): **HUNGARIAN**

Other language(s):

| | UNDERSTANDING | | SPEAKING | | WRITING |
|----------------|---------------|---------|-------------------|--------------------|---------|
| | Listening | Reading | Spoken production | Spoken interaction | |
| ENGLISH | C1 | C1 | C1 | C1 | C1 |

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user

SKILLS

Languages

Rust | Solidity | Prolog | Circom | Elixir | C | C++ | JavaScript | Java | Kotlin | C# | Shell Script (Bash) | Python

Web Technologies

node.js | web3.js | next.js | nest.js | tailwindCSS | express.js | HTML

DevOps tools

Docker | Kubernetes | Git | Jenkins | Maven | GitHub Workflows | Gradle | SonarQube | Snyk | CI / CD pipeline design | Continuous Integration and Continuous Delivery

DLT (Blockchain) development

Geth | Truffle | Ganache | Hyperledger Indy | Hyperledger Fabric | Hyperledger Aries

Agent Programming

BDI architecture | AgentSpeak(L)

Database Management

SQL | MongoDB | Relational databases

Development Frameworks, Tools, Skills

Flutter | Design Patterns | Spring

API design and development

Swagger | REST | DIDComm

System Engineering

SysML | PlantUML | Latex | UML