

# Syed Muhammad Danish

Email: syed-muhammad.danish.1@ens.etsmtl.ca

Phone: 438-408-2358

## EDUCATION

2019 - 2022	PhD Scholar, <b>ETS Montreal</b> , Quebec, Canada Thesis: Service Selection Middleware using Blockchain for IoT Applications Supervisor: <a href="#">Prof. Kaiwen Zhang</a> Co-supervisor: <a href="#">Prof. Hans-Arno Jacobsen</a>
2016 - 2018	Master of Science in ELECTRICAL ENGINEERING, <b>NUST</b> , Pakistan Thesis: "Security & Interference Analysis of Jamming Attacks in LoRaWAN based IoT Networks" GPA: <b>4.00/4.00</b>
2010 - 2014	Bachelor of Science in TELECOM ENGINEERING, <b>UET Taxila</b> , Pakistan GPA: <b>3.63/4.00</b>

## WORK EXPERIENCE

CURRENT	Post-Doctoral Researcher and Blockchain Developer at ETS Montreal and Hydro-Quebec
SEP 2022	<ul style="list-style-type: none"><li>- Research and investigate blockchain-based solutions for transactive energy trading and distributed energy resources (DERs) integration.</li><li>- Implementation of solidity-based smart contracts to support the transactive energy market.</li><li>- Designing and developing a decentralized web3 application to implement financial services using EVM-based blockchain.</li><li>- Implementation of the solutions using Layer 1 and Layer 2 blockchain platforms.</li><li>- Performance modelling and evaluation of blockchain-based solutions.</li><li>- Integration of blockchain supported back-end server in Hydro-Quebec's software platform.</li><li>- Designing and proposing an IoT smart meter-based end-to-end architecture to integrate blockchain solutions.</li></ul>
AUG 2022	Research Intern (Blockchain Developer) at Hydro-Quebec
OCT 2021	Worked with Hydro-Quebec on blockchain projects for future IoT-based smart grid use-cases.
AUG 2018	Research Assistant at Frederick University Cyprus (Erasmus + Project)
FEB 2018	<ul style="list-style-type: none"><li>- Explored the security vulnerabilities in LoRaWAN IoT authentication protocol.</li><li>- Investigated blockchain integration in the IoT network to enhance IoT security.</li><li>- Enhanced the authentication security of LoRaWAN IoT protocol using blockchain.</li><li>- Researched multi-factor authentication for LoRaWAN IoT networks using blockchains.</li></ul>

## SKILLS

Blockchain Platforms (Ethereum, Energy Web Chain, Quorum, Hyperledger, Avalanche, Iotex, Polygon Matic)

Blockchain Development Frameworks (Truffle (web3js), Hardhat (Etherjs))

Programming Languages (Python, JavaScript, Solidity)

Frameworks (React, Python Flask, Django, Nodejs)

Databases (InfluxDB, MongoDB, IPFS, Filecoin web3 storage)

Other tools (Docker, Gitlab (CI/CD), AWS cloud)

Hardware (Arduino, Raspberry Pi)

## SELECTED PUBLICATIONS

---

1. **Syed Muhammad Danish**, Kaiwen Zhang, Hans-Arno Jacobsen. *BlockAIM: A Neural Network-Based Intelligent Middleware For Large-Scale IoT Data Placement Decisions*. 2021 IEEE Transactions on Mobile Computing (IF 5.112)  
Link: <https://ieeexplore.ieee.org/document/9398554>
2. **Syed Muhammad Danish**, Kaiwen Zhang, Hans-Arno Jacobsen, Nouman Ashraf, Hassaan Khaliq Qureshi. *BlockEV: Efficient and Secure Charging Station Selection for Electric Vehicles* 2020 IEEE Transaction on Intelligent Transportation Systems (IF 6.319)  
Link: <https://ieeexplore.ieee.org/document/9310692>
3. **Syed Muhammad Danish**, Kaiwen Zhang, Hans-Arno Jacobsen. *BlockAM: An Adaptive Middleware for Intelligent Data Storage Selection for Internet of Things*. 2020 IEEE International Conference on Decentralized Applications and Infrastructures (DAPPS)  
Link: <https://ieeexplore.ieee.org/abstract/document/9126003/> (Best Paper Award)
4. **Syed Muhammad Danish**, Marios Lestas, Hassaan Khaliq Qureshi, Kaiwen Zhang, Waqar Asif, Muttukrishnan Rajarajan. *Securing the LoRaWAN Join Procedure using Blockchains* (IF 3.458)  
Link: <https://link.springer.com/article/10.1007/s10586-020-03064-8>
5. Muhammad Munim Shabir, **Syed Muhammad Danish**, Kaiwen Zhang. *BlockQoS: Fair Monetization of On-Demand Quality-of-Service using Blockchains*  
Link: <https://dl.acm.org/doi/10.1145/3580284>
6. Subhasish Goswami, **Syed Muhammad Danish**, and Kaiwen Zhang. *Towards a middleware design for efficient blockchain oracles selection*  
Link: <https://ieeexplore.ieee.org/document/9922433>

## PUBLIC RESEARCH PROFILE

---

1. [Google Scholar](#)
2. [DBLP](#)
3. [Research Gate](#)

## LANGUAGES

---

1. English (Bilingual Proficiency)
2. French (Limited Working Proficiency)

## ACHIEVEMENTS AND CERTIFICATES

---

- |           |   |
|-----------|---|
| AUG. 2022 | Nominated for best PhD thesis award                                   |
| JAN. 2019 | International Research Collaboration Scholarship (TU Munich, Germany) |
| JAN. 2019 | Scholarship for Securing Top Position in MSEE 2016 (Gold Medalist)    |
| FEB. 2018 | Erasmus + Exchange Scholarship  |

## REFERENCES

---

1. [Prof. Kaiwen Zhang](#)  
Associate Professor | École de technologie supérieure, Montreal | [kaiwen.zhang@etsmtl.ca](mailto:kaiwen.zhang@etsmtl.ca)
2. [Prof. Hans-Arno Jacobsen](#)  
Professor | University of Toronto, Canada | [jacobsen@eecg.toronto.edu](mailto:jacobsen@eecg.toronto.edu)
3. [Prof. Marios Lestas](#)  
Associate Professor | Frederick University, Cyprus | [eng.lm@frederick.ac.cy](mailto:eng.lm@frederick.ac.cy)
4. [Prof. Ali Motamedi](#)  
Associate Professor | École de technologie supérieure, Montreal | [ali.motamedi@etsmtl.ca](mailto:ali.motamedi@etsmtl.ca)