Sana Hafeez

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Sana Hafeez
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Professional Highlights

- In collaboration with the Department of Electrical and Software Engineering, University of **Calgary**, Canada.
- In collaboration with Aviation Space Exploration (IRC-ASE) at King Fahd University **KFUPM**, Saudi Arabia.
- Specialization in blockchain-based secure UAV network design and optimization as a PhD Candidate.
- Awarded several scholarships and recognitions, including the BARMAT – HEC PhD Fully-funded scholarship.
- Publications in IEEE Transaction on Vehicular Technologies, IEEE Open Journal on Vehicular Technology, IEEE VTC, and presented at various international UAV and blockchain conferences.
- Technical Program Committee Member for IEEE conferences, active memberships in IEEE and IET.
- Leadership roles in academic and community initiatives, including PGR Representative.
- Engagement in promoting diversity and inclusion as a member of the EDIG at the University of Glasgow.

Employment History

Research Assistant *James Watt School of Engineering, University of Glasgow*
March 2024 – Present Project title: Next-Gen Telecommunications Research TUDOR Project Funding body: UK Government Total Funding: ~£12,000,000

- Focused on developing technologies for a more open, flexible, and scalable mobile network.

Education

- **Ph.D. in Electronic and Electrical Engineering** 2021 – Present James Watt School of Engineering, University of Glasgow Thesis title: *Blockchain-based Secure Unmanned Aerial Vehicles (UAV) Network Design and Optimization.*
- **M.S. in Computer Science and Information Technology** 2018 – 2020 Comsats Institute of Information Technology, Islamabad, Pakistan Thesis title: *Cybersecurity in the Internet of Drones (IoD).*
- **B.S. in Software Engineering** 2014 – 2018 Mirpur University of Science and Technology, AJK, Pakistan Project title: *Speech Recognition Power-based System.*

Research Supervision and Teaching

James Watt School of Engineering, University of Glasgow, UK *August 2022 – Present*

- Supervised over eight master's student projects, served as a tutor for various engineering courses.
- Roles include Graduate Teaching Assistant, Demonstrator, and Tutor.
- Exam marker for UESTC-APS partnership program.

Academic Achievements Recognitions

- Technical Program Committee Member for the IEEE VTC 2024 Spring, Singapore.
- Technical Program Committee Member for the VTC 2024 Fall, Washington DC.
- Session Chair at the IEEE Wireless Communications and Networking Conference Track 05, Glasgow, United Kingdom.

Reviewer

- ACM Transactions on Sensor Networks.
- IEEE Network.
- IEEE International Conference on Communications (ICC) 2024.
- IEEE Access.
- IEEE Globecom 2024.
- Transactions on Consumer Electronics.
- IEEE Internet of Things Journal.
- IEEE Transactions on Communications.
- Transactions on Sensor Networks.
- IEEE Communications Magazine.
- Frontiers Of Information Technology (FIT), Pakistan.

Grant Funding and Awards

BARMAT – HEC PhD Fully-funded Scholarship (2020)

Linux Foundation - Scholarship Grant ($600, Dublin, Ireland, 2022)

Inspiring Young Women in Tech, Women in Data Science, London (2023)

Research Mobility Scholarship, Canada (£1400, University of Glasgow, 2023-2024)

The ComSoc Committee for 2023 Student Tech Leadership at the Future Network World Forum (2023)

IEEE 99th Vehicular Technology Conference: VTC2024-Spring Singapore, ($1000, Travel grant 2024)

Professional Memberships

- IEEE Young Professionals, IEEE Graduate Member
- Member of IEEE Vehicular Technology Society (VTS)
- SCOPE- UOG (2022-2024)
- The Institution of Engineering and Technology (IET), UK
- IEEE Women in Engineering (WIE) and IEEE SIGHT
- Member of the Equality Diversity and Inclusion Group (EDIG), University ofGlasgow

PhD Publications

1. **S. Hafeez**, A. R. Khan, M. Al-Quraan, L. Mohjazi, A. Zoha, M. A. Imran, and Y. Sun, "Blockchain-assisted UAV Communication Systems: A Comprehensive Survey," *IEEE Open Journal of Vehicular Technology*, vol. 4, pp. 558-580, 2023.
2. **S. Hafeez**, R. Cheng, L. Mohjazi, Y. Sun, and M. A. Imran, "Securing the Skies: Blockchain-Enhanced UAV Flocking Networks for Post-Disaster Communication," *IEEE Transactions on Vehicular Technology*, 2024.

3. **S. Hafeez**, H. U. Manzoor, L. Mohjazi, A. Zoha, M. A. Imran, and Y. Sun, "Blockchain-Empowered Immutable and Reliable Delivery Service (BIRDS) Using UAV Networks," in *Proc. IEEE Int. Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD)*, UK, 2023.

4. **S. Hafeez**, L. Mohjazi, M. A. Imran, and Y. Sun, "Blockchain-enabled Clustered and Scalable Federated Learning (BCS-FL) Framework in UAV Networks," in *Proc. IEEE Int. Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD)*, pp. 6–20, 2023.

5. **S. Hafeez**, M. A. Shawky, M. Al-Quraan, L. Mohjazi, M. A. Imran, and Y. Sun, "BETA-UAV: Blockchain-based Efficient and Trusted Authentication for UAV Communication," in *Proc. IEEE 22nd Int. Conf. on Communication Tech. (ICCT)*, Nanjing, China, Nov. 2022.

6. **S. Hafeez**, R. Cheng, L. Mohjazi, M. A. Imran, and Y. Sun, "A Blockchain-Enabled Framework of UAV Coordination for Post-Disaster Networks," in *Proc. IEEE 99th Vehicular Tech. Conf. (VTC Spring)*, Singapore, June 2024.

   Under Review/In-progress

7. **S. Hafeez**, Y. Sun, and M. A. Imran, "Drones to the Rescue: Envisioning the Future of Healthcare Delivery in Scotland Using Autonomous Air Transportation," *Nature Communications*, 2024.

8. **S. Hafeez**, Qiang Ye, Y. Sun, and M. A. Imran, "AI-Assisted 6G Networking for Autonomous UAV-Enabled Digital Twin Healthcare Infrastructure Monitoring," *IEEE Transaction on Vehicular Technology*, 2024.

9. **S. Hafeez**, G.E. Abro, Y. Sun, M. A. Imran and A. M. Abdullah, "Blockchain-Enabled Secure Trajectory Control of Quadcopter Swarms in RIS-Assisted Environments," *IEEE Access*, 2024.

Skills

- **Frameworks:** TensorFlow, PyTorch, Streamlit
- **Programming:** Python, C, LaTeX
- **Tools:** Ethereum, MATLAB, Wireless InSite
- **IoT Technologies:** Experience in MetaMask, Rinkeby Ethereum DApp
- **Miscellaneous:** Academic research, LaTeX typesetting and publishing

References

Prof. Muhammad Ali Imran
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