Mohammad Imran SYED

Ph.D. Computer Science

Education

2020 - 2023 **Ph.D. Computer Science**, *Network and Performance Analysis team (NPA), LIP6, Sorbonne Université*, Paris, France.

2017 - 2019 **M.Sc. ICT Innovation**, *EIT Digital Master School*, Technische Universität, Berlin, Germany and Sorbonne Université, Paris, France, *sehr gut and mention bien*.

2011 - 2012 **M.Sc. Mobile and Satellite Communications**, *University of South Wales (formerly University of Glamorgan)*, Treforest, United Kingdom, *merit*.

2006 - 2010 **B.Sc. Electrical Engineering (Telecom)**, *Bahria University*, Islamabad, Pakistan, *silver medal*.

Theses

Ph.D. *Wireless passive measurements: tool, redundancy, measurements, and analyses - as a part of ANR-MITIK project.*

EIT M.Sc. *The Challenges of Trace-Driven Wi-Fi Emulation.*

USW M.Sc. *Research Study in Achieving LTE Goals by Overcoming Physical Layer and Network Challenges (Distinction).*

B.Sc. *Design and Simulation of OFDM Transceiver in MATLAB.*

Experience

2024-present **Postdoctoral Researcher and Teaching Assistant**, *Complex Systems Engineering Department (DISC), ISAE-SUPAERO*, Toulouse, France.

- Co-supervised practical (Travaux pratiques - TP) sessions of Networking course for 2nd-year Bachelor students.
- An accepted paper on routing optimisation in LEO satellites, will be presenting at the end of October 2025.
- Currently working on QoS in LEO networks.

2023-2024 **Engineer @ ENE5AI project**, *Network and Performance Analysis team (NPA), LIP6, Sorbonne Université*, Paris, France.

- Worked in collaboration with Paris Fire Brigade to create and deploy a communication network for them using 5G and Wi-Fi mesh network for a full-fledge intervention.
- Focus was on measuring the quality of audio and video in a multi-hop Wi-Fi mesh network.

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2020 - 2024 **Teaching Assistant**, *Network and Performance Analysis team (NPA), LIP6, Sorbonne Université*, Paris, France.

- Responsible for the tutorial (Travaux dirigés - TD) and practical (Travaux pratiques - TP) sessions of the following courses:
  - Internet Routing
  - Wireless and Mobile Computing (WMC)
  - Mobilité et sans fil (MOB)

2019 - 2019 **Master thesis**, *Institut National de Recherche en Informatique et en Automatique (INRIA)*, Paris, France.

2017 - 2017 **Drive Test and Post-processing Intern**, *TurnoTech - A Telecom Subcontractor*, Islamabad, Pakistan.

- Drive test with the help of software: Nemo Outdoor and Genex Probe.
- Post Processing with the help of software: MapInfo and Nemo Analyze.

2015 - 2015 **RF Optimisation (North) Intern**, *Jazz (formerly Mobilink PMCL) - A Telecom Operator*, Islamabad, Pakistan.

- Created 2G and 3G statistics tool in Excel.
- Created Nationwide Dashboard Tool for Drop Call Rate KPI.
- Created KPIs & reports on PRS.
- Created IOIM/RTWP heat-maps on MapInfo.
- Trouble Ticket handling.
- Cell creation (piano file) on MapInfo using TRF tool.
- 2G and 3G drive testing on TEMS Investigation.
- Post Processing on MapInfo.

2013 - 2014 **Graduate Small Cell Engineer**, *Alcatel-Lucent*, Swindon, United Kingdom.

- Worked as Femto Radio Resource Management (Layer 3) Software Developer for 3G (UMTS) Femto Cells.
- Development was in C++, with state machine code generated from a UML model. My responsibilities included development, creating CPP Unit tests and Python based end to tests.

2010 - 2011 **Intern in Managed Services Department – CMPak Project**, *Alcatel-Lucent*, Islamabad, Pakistan.

- Learnt and practiced the work of a Network Operations Centre (NOC) Engineer- managing BTS sites alarms on software.

Languages

English - C2
French - B1
Urdu - Native
Saraiki- Mother tongue

Skills

Wireless networks
Wireless measurements
Python
Linux
Data analytics
MATLAB
LaTeX
MS Office

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Miscellaneous Experience

2022 & 2023 Co-organized the NPA Ph.D. students, postdocs, and interns day.

2021 - 2022 Supervised 2 groups of M1 students for projects:
- Impact of TP-Link WN 722N and Sniffer placement on trace completeness.
- Time synchronization, merging, and trace completeness for Bluetooth - resulted in a python tool, called BLEPal, for Bluetooth trace synchronization.

2021 Participated as a reviewer in Shadow PC of AlgoTel/CoRes 2021.

Tool(s) developed

- Developed a python tool, called PyPal, for Wi-Fi trace synchronization and merging.

References

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CNRS
Laboratoire LIP6 - BC 169,
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75252 Paris CEDEX 05,
France.
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Research Publications

Journal Articles

[1] **M. I. Syed**, A. Fladenmuller, and M. Dias de Amorim. "Unity is strength: Improving Wi-Fi passive measurements through sniffer redundancy". In: *Ad Hoc Networks* (Sept. 2023), p. 103287. ISSN: 1570-8705. DOI: https://doi.org/10.1016/j.adhoc.2023.103287.

Conference Proceedings

[1] P. V. Rubinstein, F. D. M. Silva, G. Fittipaldi, **M. I. Syed**, R. S. Couto, A. Fladenmuller, L. H. M. K. Costa, and M. Dias de Amorim. "Diversité spatio-temporelle et localisation". In: *CORES 2025 - 10èmes Rencontres Francophones sur la Conception de Protocoles, l'Evaluation de Performances et l'Expérimentation des Réseaux de Communication*. Saint Valéry-sur-Somme, France, June 2025. URL: https://hal.science/hal-05033014.

[2] K. Ouali, T.-M.-T. Nguyen, **M. I. Syed**, A. Fladenmuller, B. Kervella, and N. Peugnet. "Gateway Selection in 5G/Wi-Fi Architecture: A Fire Emergency Case Study". In: *2024 20th International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob)*. Dec. 2024. DOI: 10.1109/WiMob61911.2024.10770457.

[3] P. Videira Rubinstein, F. Dias de Mello Silva, **M. I. Syed**, A. Fladenmuller, M. Dias de Amorim, and L. H. Maciel Kosmalski Costa. "Estimativa de Distância em Redes Wi-Fi usando Supersniffers". In: *Simpósio Brasileiro de Redes de Computadores e Sistemas Distribuídos*. Niterói, Rio de Janeiro, Brazil, May 2024. URL: https://hal.science/hal-04510570.

[4] **M. I. Syed**, A. Fladenmuller, and M. Dias de Amorim. "RSSI: Lost and Alone, a Case for Redundancy". In: *2022 18th International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob)*. Nov. 2022. DOI: 10.1109/WiMob55322.2022.9941697.

[5] **M. I. Syed**, A. Fladenmuller, and M. Dias de Amorim. "How much can Sniffer Redundancy Improve Wi-Fi Traffic?" In: *2022 IEEE 95th Vehicular Technology Conference: (VTC2022-Spring)*. June 2022. DOI: 10.1109/VTC2022-Spring54318.2022.9860874.

[6] **M. I. Syed**, A. Fladenmuller, and M. Dias de Amorim. "Assessing the Completeness of Passive Wi-Fi Traffic Capture". In: *2022 International Wireless Communications and Mobile Computing (IWCMC)*. May 2022. DOI: 10.1109/IWCMC55113.2022.9824970.

[7] **M. I. Syed**, A. Fladenmuller, and M. Dias de Amorim. "Jusqu'où la redondance peut aider dans la capture passive de trafic Wi-Fi". In: *CORES 2022 – 7ème Rencontres Francophones sur la Conception de Protocoles, l'Évaluation de Performance et l'Expérimentation des Réseaux de Communication*. Saint-Rémy-Lès-Chevreuse, France, May 2022. URL: https://hal.archives-ouvertes.fr/hal-03658730.

Preprints/Working Papers

[1] **M. I. Syed**, A. Fladenmuller, and M. Dias de Amorim. "Comparative Analysis of Single- and Multi-Interface Super-Sniffers in Wi-Fi Passive Monitoring". working paper or preprint. Oct. 2024. URL: https://hal.science/hal-04724149.

[2] **M. I. Syed**, R. Teixeira, S. Ayoubi, and G. Grassi. "The Challenges of Trace-Driven Wi-Fi Emulation". working paper or preprint. Aug. 2019. URL: https://hal.science/hal-02468864.

Technical Reports

[1] N. Achir, A. Carneiro Viana, M. Dias de Amorim, F. Dias de Mello Silva, G. Farhi-Rivasseau, A. Fladenmuller, Y. Ghamri-Doudane, J.-L. Guillaume, A. Huchet, A. K. Mishra, F. Molano Ortiz, and **M. I. Syed**. *D3.3: Trace observations*. Tech. rep. D3.3. Sorbonne Université (Paris, France) ; Inria Saclay - Île de France ; La Rochelle Université, France, Dec. 2024. URL: https://hal.science/hal-04991691.

[2] N. Achir, A. Carneiro Viana, M. Dias de Amorim, F. Dias de Mello Silva, A. Fladenmuller, Y. Ghamri-Doudane, J.-L. Guillaume, A. Huchet, A. K. Mishra, F. Molano Ortiz, and **M. I. Syed**. *D2.2b: Measurement tools, data collection and device association*. Tech. rep. D2.2b. Sorbonne Université (Paris, France) ; Inria Saclay - Île de France ; La Rochelle Université, France, Dec. 2024. URL: https://hal.science/hal-04995763.

[3] N. Achir, A. Carneiro Viana, M. Dias de Amorim, F. Dias de Melo Silva, A. Fladenmuller, Y. Ghamri-Doudane, J.-L. Guillaume, A. Huchet, A. K. Mishra, F. Molano Ortiz, and **M. I. Syed**. *D2.2a: Measurement infrastructure deployment and raw data collection*. Tech. rep. D2.2a. Sorbonne Université (Paris, France) ; Inria Saclay - Île de France ; La Rochelle Université, France, Dec. 2024. URL: https://hal.science/hal-04995688.

[4] N. Achir, A. Carneiro Viana, M. Dias de Amorim, F. Dias de Mello Silva, A. Fladenmuller, Y. Ghamri-Doudane, J.-L. Guillaume, A. Huchet, A. K. Mishra, F. Molano Ortiz, and **M. I. Syed**. *D3.2: Trace merging on a per-user basis*. Tech. rep. D3.2. Sorbonne Université (Paris, France) ; Inria Saclay - Île de France ; La Rochelle Université, France, Feb. 2024. URL: https://hal.science/hal-04991491.

[5] N. Achir, A. Carneiro Viana, M. Dias de Amorim, F. Dias de Mello Silva, G. Farhi-Rivasseau, A. Fladenmuller, Y. Ghamri-Doudane, J.-L. Guillaume, A. Huchet, A. K. Mishra, F. Molano Ortiz, C. Palamidessi, and **M. I. Syed**. *D3.1: Sanitization strategies and utility results*. Tech. rep. D3.1. Sorbonne Université (Paris, France) ; Inria Saclay - Île de France ; La Rochelle Université, France, Feb. 2023. URL: https://hal.science/hal-04991474.

[6] M. F. Akli, N. N. E. A. Boukerras, N. Derradji, D. Laga, and **M. I. Syed**. *BLEPal*. Technical Report. Sorbonne Université, UPMC, Aug. 2022. URL: https://hal.science/hal-03765103.

[7] N. Bencherif, M. Chabane, L. Mehidi, L. Paredes, and **M. I. Syed**. *Impact of TP-Link WN 722N and Sniffer placement on trace completeness*. Research Report. Sorbonne Université, UPMC, May 2022. URL: https://hal.science/hal-03752126.

[8] **M. I. Syed**, A. Fladenmuller, and M. Dias de Amorim. *PyPal: Wi-Fi Trace Synchronization and Merging Python Tool*. Technical Report. LIP6 UMR 7606, UPMC Sorbonne Université, France, Mar. 2022. URL: https://hal.archives-ouvertes.fr/hal-03618014.

[9] N. Achir, A. Carneiro Viana, M. Dias de Amorim, F. Dias de Mello Silva, A. Fladenmuller, Y. Ghamri-Doudane, J.-L. Guillaume, A. Huchet, L. Jouans, A. K. Mishra, F. Molano Ortiz, and **M. I. Syed**. *D2.1: Architectural design and instantiation*. Tech. rep. D2.1. Sorbonne Université (Paris, France) ; Inria Saclay - Île de France ; La Rochelle Université, France, Feb. 2021. URL: https://hal.science/hal-04991451.

Invited Talks

- Talk titled "Towards mobility: Evaluation of wireless devices through passive measurements" delivered to Self-Organizing Future Ubiquitous Networks (FUN) team, INRIA, Lille, France on 22nd May 2023.
- Talk titled "Navigating the LEO Network: A Routing Optimisation Approach" delivered at Séminaires Toulousains en Réseaux (STORE) seminar held at ISAE-SUPAERO, Toulouse on 17th March 2025.