Wissam Fawaz, PhD

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COMPUTER SKILLS

Languages

- Java, JavaScript, C++, C, and Python

EXPERIENCE

Professor of Computer Engineering, Lebanese American University   September 2006 - Present

- Taught and continuously developed **3 major software development courses:**

  o Java programming, data structures and algorithms, and android application development

- Designed and developed **Java-based** simulators

  o for Vehicular Ad-hoc Networks (VANETs) and Free Space Optical Communication (FSO) systems

  o enabling the publication of 15 journal papers in top publication venues

- Designed and developed a **C++ based** optical network simulator

  o resulting in the publication of 8 journal papers in top publication venues

- Supervised over 40 undergraduate students in their **final year projects**

  o The project titled "UAV-based inspection of power lines" won the most collaborative development project award given by the Murex Lebanese software development company (2022)

  o The project titled "Smart Alzheimer friendly environment (SAFE)" won the best innovative development project award granted by the Lebanese CME offshore and Murex companies (2019)

- Secured **two promotions**, namely:

  o to the rank of associate professor of Computer Engineering in 2012

  o and to the rank of full professor of Computer Engineering in 2019

- Published **35 journal as well as 19 conference papers** (https://wissamfawaz.com/publications)

- Received **research funding** from the National Council of Scientific Research (CNRS) as

  o Primary investigator (PI) for the project titled "Improving Availability in Relay-assisted Free-Space Optical Systems and Vehicular Ad-Hoc Networks through Store-carry-forward Unmanned Aerial Vehicles", with a budget of 13,000$ (2018)

  o Co-PI for the project title "Delay Attacks in Smart Grids: Detection and Mitigation", with a budget of 14,000$ (2018)

  o Co-PI for the project titled "Analysis of Realistic 5G Cooperative FSO networks through Buffer-aided relays", with a budget of 11,000$ (2018)

- Spent **as visiting scientist**

  o 6 months at the Institute for Information Systems Engineering, Concordia, Canada (2017)

  o 4 months at the Computer Science Department, North Carolina State University, USA (2008)

- Co/supervised **the theses** of 6 graduate students and 1 Ph.D. student

- Served as an **associate editor** for the
    - Springer journal of Annals of Telecommunications (2018 – Present)
    - IEEE Communications Letters (2013 – 2017)

EDUCATION

University of Paris 13, France   2002 – 2005
- Ph.D. degree in Computer Engineering

University of Paris 6, France   2001 – 2002
- MS degree in Computer Engineering

Lebanese University, Beirut, Lebanon   1996 – 2001
- BE degree in Computer Engineering

HONORS AND AWARDS

Fulbright research award   2008

French ministry of research and education scholarship   2002 – 2005

PUBLICATIONS

International Journals (35 manuscripts)

1. N. Abbas, **W. Fawaz**, S. Sharafeddine, A. Mourad, and C. Abou-Rjeily, "SVM-based Task Admission Control and Computation Offloading using Lyapunov Optimization in Heterogeneous MEC Network", IEEE Transactions on Network and Service Management, accepted in March 2022

2. N. Abbas, S. Sharafeddine, A. Mourad, C. Abou-Rjeily, and **W. Fawaz**, "Joint computing, communication and cost-aware task offloading in D2D-enabled Het-MEC", Elsevier Journal of Computer Networks, accepted in March 2022

3. Z. Nakad, M. A. Sayed, A. Yaghi, H. Margossian, and **W. Fawaz**, "A novel offline indoor acoustic synchronization protocol: experimental analysis", Springer Journal of Annals of Telecommunications, volume 77, pp. 221–236, April 2022

4. C. Abou-Rjeily and **W. Fawa**z, "Quality-of-Service Differentiation in Buffer-aided Cooperative Free Space Optical Communication Systems", IEEE Transactions on Wireless Communications, volume 20, pp. 6064 – 6077, September 2021

5. M. Al-Abbas, **W. Fawaz**, R. Ghajar, C. Abou-Rjeily, I. Ouaiss, Z. Nakad, G.E. Nasr, and S.S. Saab, "Toward an Improvement of Engineering Teaming Skills Through an In-House Professionalism Course", IEEE Transactions on Education, volume 63, pp. 273-282, March 2020

6. H. Margossian, M. Sayed, **W. Fawaz**, and Z. Nakad, "Partial Grid False Data Injection Attacks against State Estimation", Elsevier Journal of Electrical Power and Energy Systems, volume 110, pp. 623-629, September 2019.

7. C. Abou-Rjeily and **W. Fawaz**, "Buffer-Aided Serial Relaying for FSO Communications: Asymptotic Analysis and Impact of Relay Placement", IEEE Transactions on Wireless Communications, vol. 17, pp. 8299-8313, December 2018

8. R. Atallah, C. Assi, **W. Fawaz**, M. Tushar, and M. Khabbaz, "Optimal Supercharge Scheduling of Electric Vehicles: Centralized vs. Decentralized Methods", IEEE Transactions on Vehicular Technology, vol. 67, pp. 7896-7909, September 2018

9. **W. Fawaz**, "Effect of Non-cooperative Vehicles on Path Connectivity in Vehicular Networks", Elsevier Journal of Vehicular Communications, vol. 11, pp. 12-19, January 2018

10. **W. Fawaz**, C. Abou-Rjeily, and C. Assi, "UAV-aided Cooperation for FSO Communication Systems", IEEE Communications Magazine, vol. 56, pp. 70-75, January 2018

11. **W. Fawaz**, R. Atallah, C. Assi, and M. Khabbaz, "Unmanned Aerial Vehicles as Store-Carry-Forward Nodes for Vehicular Networks", IEEE Access Journal, vol. 5, issue 1, pp. 23710-23718, December 2017

12. C. Abou-Rjeily and **W. Fawaz**, "Buffer-Aided Relaying Protocols for Cooperative FSO Communications", IEEE Transactions on Wireless Communications, vol. 16, pp. 8205-8219, December 2017

13. **W. Fawaz** and J. El Khoury, "An exact modelling of the uniform control traffic delay in undersaturated signalized intersections", Wiley Journal of Advanced Transportation, vol. 50, issue 5, pp. 918 - 932, August 2016

14. M. Khabbaz, C. Assi, M. Hassna, A. Ghrayeb, and **W. Fawaz**, "Modelling, analysis and performance improvement of an SRU's access request queue in multi-channel V2I communications", Elsevier Journal of Pervasive and Mobile Computing, vol. 21, pp. 92 - 102, August 2015

15. **W. Fawaz**, "Improved EDF-based Management of the Setup of Connections in Opaque and Transparent Optical Networks", Springer Journal of Photonic Network Communications, vol. 27, issue 1, pp. 8 - 15, January 2014

16. **W. Fawaz**, R. Atallah, and M. Khabbaz, "A First Step Towards the Resolution of The Starvation Problem In Multi-Point-to-Point ICRCNs", IEEE Communications Letters, vol. 17, issue 11, pp. 2104 - 2107, November 2013

17. M. Khabbaz, **W. Fawaz**, and C. Assi, "A Probabilistic and Traffic-aware Bundle Release Scheme for Vehicular Intermittently Connected Networks", IEEE Transactions on Communications, vol. 60, issue 11, pp. 3396 - 3406, November 2012

18. M. Khabbaz, **W. Fawaz**, and C. Assi, "A Simple Free-Flow Traffic Model for Vehicular Intermittently Connected Networks", IEEE Transactions on Intelligent Transportation Systems, vol. 13, issue 3, pp. 1312 - 1326, September 2012

19. M. Khabbaz, **W. Fawaz**, and C. Assi, "Modeling and Delay Analysis of Intermittently Connected Roadside Communication Networks", IEEE Transactions on Vehicular Technology, vol. 61, issue 6, pp. 2698 - 2706, July 2012

20. M. Khabbaz, C. Assi, and **W. Fawaz**, "Disruption-tolerant Networking: A Comprehensive Survey on Recent Development and Persisting Challenges", IEEE Communications Surveys and Tutorials, vol. 14, issue 2, pp. 607 - 640, June 2012

21. M. Khabbaz, **W. Fawaz**, and C. Assi, "Which Vehicle To Select?", IEEE Communications Letters, vol. 16, issue 6, pp. 812 - 815, June 2012

22. **W. Fawaz**, "Enhancement of Blocking Performance in All-optical WDM Networks via Wavelength Reassignment and Route Deviation", Elsevier Journal of Computer Communications, vol. 35, issue 8, pp. 929 - 935, May 2012

23. M. Khabbaz, **W. Fawaz**, and C. Assi, "Probabilistic Bundle Relaying Schemes in Two-Hop Vehicular Delay Tolerant Networks", IEEE Communications Letters, vol. 15, issue 3, pp. 281 - 283, March 2011

24. **W. Fawaz**, Z. Nakad, and M. Aad, "Preemption-enabled Setup of Optical Connections Coupled with Event-driven Rerouting", IEEE Communications Letters, vol. 15, issue 2, pp. 250 - 252, February 2011

25. **W. Fawaz**, I. Ouaiss, K. Chen, and H. Perros, "Deadline-based Connection Setup in Wavelength-routed WDM Networks", Elsevier Journal of Computer Networks, vol. 54, issue 11, pp. 1972 – 1804, August 2010

26. Z. Nakad and **W. Fawaz**, "Networking in e-Textiles", Elsevier Journal of Computer Communications, vol. 33, issue 6, pp. 655 – 666, April 2010

27. **W. Fawaz** and M. Khabbaz, "Incorporating Mutation Probability into Priority-Aware Protection in Optical Networks", IEEE Communications Letters, pp. 865 – 857, vol. 13/11, November 2009

28. **W. Fawaz**, T. Sawah, and C. Abou-Rjeily, "Priority-aware Optical Shared Protection: An Offline Evaluation Study", Elsevier Journal of Computer Communications, vol. 32/15, pp. 1677 – 1684, September 2009

29. C. Abou-Rjeily and **W. Fawaz**, "Space-Time Codes for MIMO Ultra-Wideband Communications and MIMO Free-Space Optical Communications with PPM", IEEE Journal on Selected Areas in Communications, vol. 26/6, pp. 938 – 947, August 2008

30. C. Abou-Rjeily and **W. Fawaz**, "Distributed Information-Lossless Space-Time Codes for Amplify-and-Forward TH-UWB Systems", IEEE Communications Letters, vol. 11/4, pp. 298–300, April 2008

31. **W. Fawaz**, K. Chen, and C. Abou-Rjeily, "A Novel Connection Setup Management Approach for Optical WDM Networks", IEEE Communications Letters, vol. 11/12, pp. 998–1000, December 2007

32. **W. Fawaz**, K. Chen, and G. Pujolle, "Priority-enabled Optical Shared Protection: an Online Efficiency Evaluation Study", Elsevier Journal of Computer Communications, vol. 30/18, pp. 3690–3697, December 2007

33. **W. Fawaz**, F. Martignon, K. Chen, and G. Pujolle, "A Novel Fault Management Approach for DWDM Optical Networks", ACM/Wiley International Journal of Network Management, vol. 16/5, pp. 337–349, September/October 2006

34. **W. Fawaz** et al., "Service Level Agreement in Optical Networks", Annals of Telecommunications, vol. 60/9-10, pp.1275–1287, September/October 2005.

35. **W. Fawaz** et al., «Service Level Agreement and Provisioning in Optical Networks», IEEE Communications Magazine, vol. 42/1, pp.36–43, January 2004

Conference Proceedings (19 manuscripts)

1. C. Abou-Rjeily and **W. Fawaz**, "Impact of the Direct Link on the Performance of Single-Relay Buffer-Aided FSO Communications", 15th International Wireless Communications and Mobile Computing Conference, Tangier, Morocco, June 2019

2. R. Atallah and **W. Fawaz**, "Impact of Information Availability on Starvation Mitigation and Delay Minimal Delivery in ICRCNs", IEEE/IFIP Wireless and Mobile Networking Conference (WMNC), Algarve, Portugal, May 2014

3. M. Khabbaz, C. Assi, and **W. Fawaz**, "DSA-based V2I Communication Under the Microscope", IEEE WCNC 2014, Istanbul, Turkey, April 2014

4. M. Khabbaz, **W. Fawaz**, and C. Assi, "Modelling and Analysis of Bulk Bundle Release Schemes in Two-Hop Vehicular DTNs", IEEE Globecom 2011, Houston, Texas, USA, December 2011

5. M. Khabbaz, **W. Fawaz**, and C. Assi, "A Probabilistic Bundle Relay Strategy in Two-Hop Vehicular Delay Tolerant Networks", IEEE ICC 2011, Kyoto, Japan, June 2011

6. **W. Fawaz**, A. Sinno, R. Bardan, and M. Khabbaz, "A Novel Event-driven QoS-aware Connection Setup Scheme for Optical Networks", International Conference on Digital Information and Communication Technology and Its Applications (DICTAP 2011), Dijon, France, June 2011

7. **W. Fawaz** and M. Khabbaz, "Priority-aware Optical Shared Protection Coupled with Mutation Probability", 19th Annual IEEE Wireless and Optical Communications Conference (WOCC) 2010, Shanghai, China, May 2010

8. **W. Fawaz**, K. Chen, C. Abou-Rjeily, and Z. Nakad, "A Simple QoS-based Connection Setup Management Approach for Optical Networks", IEEE ICC 2008, Beijing, China, May 2008

9. **W. Fawaz** and K. Chen "SSTF: A 'Shortest Setup Time First' Optical Connections Setup Management Approach with Quantifiable Success Rate" IEEE Globecom 2006, San Francisco, California, USA, November 2006

10. O. C. Saadbouh, **W. Fawaz**, and K. CHEN, "A Novel Approach for Real Time Flows Scheduling", IEEE Globecom 2006, San Francisco, California, USA, November 2006

11. O. C. Saadbouh, **W. Fawaz**, and K. CHEN, "Une Nouvelle Approche pour la Gestion de Flux Temps Réels Basée sur l'algorithme EDF", CFIP'06, Tozeur, Tunisia, October 2006

12. O. C. Saadbouh, **W. Fawaz**, and K. CHEN, "A Hybrid EDF/FIFO Queue for Efficient Real Time Flow Handling", IEEE International Workshop on Factory Communications System 2006 (WFCS'06), Torino, Italy, June 2006

13. B. Daheb, **W. Fawaz**, K. Chen, and G. Pujolle, "Policy-based Service Provisioning Architecture for Hybrid Photonic Networks", IEEE Infocom 2006, Barcelona, Spain, April 2006

14. **W. Fawaz**, F. Martignon, K. Chen, and G. Pujolle, "A Novel Protection Scheme for Quality of Service Aware WDM Networks", IEEE International Conference on Communications, IEEE ICC'2005, Seoul, South of Korea, pp. 1720-1725, May 2005

15. **W. Fawaz**, F. Martignon, K. Chen, and G. Pujolle, "A Priority-Aware Protection Technique for Quality of Service Enabled Networks", IFIP Networking 2005, Waterloo, Canada, May 2005

16. **W. Fawaz**, F. Martignon, K. Chen, and G. Pujolle, "QoS based Protection in WDM Networks", CFIP'2005, Bordeaux, France, March 2005

17. **W. Fawaz**, B. Daheb, O. Audouin, B. Berde, K. Chen, and G. Pujolle, "Policy-based Provisioning in Hybrid Photonic Networks", IEEE International Workshop on Optical Networks Control and Management, IEEE ONCM'2005, Montreal, Canada, August 2004

18. **W. Fawaz** et al., "Policy-based Hybrid Hierarchical Optical Networks", Proc. Of IEEE First International Conference on Broadband Networks, IEEE Broadnets'2004, California, USA, October 2005

19. **W. Fawaz** et al., "SLA in Optical Networks", IFIP NET-CON 2003, Oman, October 2003