

## Dr Talal A. Edwan

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### CONTACT INFORMATION

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Google Scholar: [Google Scholar Profile](#).



### DATE OF BIRTH

20<sup>th</sup> of May 1979.

### MARITAL STATUS

Married.

### MEMBERSHIP(S)

- ⊗ Member of Jordan Engineers Association. Division: Electrical Engineering. Sub Division: Electronics Engineering.
- ⊗ Member of IEEE.
- ⊗ Member of ACM.

### RESEARCH INTERESTS

- ⊗ Performance Evaluation of Computer Systems and Telecommunication Networks.
- ⊗ Mathematical Modelling of Computer Systems and Telecommunication Networks.
- ⊗ Systems Simulation.
- ⊗ Congestion and Flow Control Mechanisms in Computer Systems and Telecommunication Networks.
- ⊗ Applied Probability, Stochastic Processes, and Queueing Theory.
- ⊗ Network Algorithms.
- ⊗ Networked Embedded Systems.
- ⊗ Wireless Sensor Networks.

### EDUCATION

**Note:** No courses were re-taken for any purposes.

[Loughborough University](#), Loughborough, England.

PhD, Computer Engineering. Subspeciality: Computer Networks.

[Oct. 2007 – Sep. 2010]

- ⊗ Dissertation Topic: “Improved Algorithms for TCP Congestion Control”.  
(Early PhD Thesis Submission Award).
- ⊗ Supervisor(s): Dr Iain W. Phillips and Dr Lin Guan.
- ⊗ Examiner(s): [Prof. Jon Crowcroft \(University of Cambridge\)](#) and Dr Olaf Maennel (Loughborough University).

**University of Plymouth**, Plymouth, England.

MSc, Network Systems Engineering with Distinction, Aggregate Final Mark = 76.81% (Excellent), ranked 3<sup>rd</sup>.

[Sep. 2005 – Sep. 2006]

- ⊗ Project Title: “Analysis of End-to-End Techniques for Bottleneck Bandwidth and Path Capacity Estimation.”, a passive and novel technique for estimating end-to-end bottleneck bandwidth was proposed.
- ⊗ Supervisor(s): Dr Bogdan Ghita.

**Princess Sumaya University for Technology**, Amman, Jordan.

BSc Hons, Electronics Engineering, Cumulative Average = 84.4% (Excellent), ranked 3<sup>rd</sup>.

[Sep. 1997 – Jun. 2002]

- ⊗ Project Title: “Arabic Speech Synthesis Application”, using free running Radial Basis Artificial Neural Networks to help disabled people who suffer from pronunciation problems.
- ⊗ Supervisor(s): Dr Mousa Habib.

**General Secondary Education.**

Jordanian General Secondary Education Certificate Scientific Stream, Average = 86.3%, ranked 1<sup>st</sup> in school.

[Sep. 1996 – Jul. 1997]

#### ACADEMIC EXPERIENCE

**The University of Jordan**, Amman, Jordan.

Assistant Professor, Faculty of Engineering, Computer Engineering Department.

[Sep. 2022 – Present]

**Al-Ahliyya Amman University (AAU)**, Amman, Jordan.

Assistant Professor, Faculty of Engineering, Computer Engineering Department.

[Sep. 2020 – 2021]

**Princess Sumaya University for Technology (PSUT)**, Amman, Jordan.

Assistant Professor, King Abdullah II Faculty of Engineering, Computer Engineering Department.

[Sep. 2014 – Sep. 2019]

Supervised more than 60 embedded-systems projects in the Computer Engineering Department and reviewed many research papers in the following journals:

- ⊗ “Computer Networks”.
- ⊗ “The Computer Journal”.

**Princess Sumaya University for Technology (PSUT)**, Amman, Jordan.

Part-Time Assistant Professor, King Abdullah II Faculty of Engineering.

[Sep. 2012 – Sep. 2014]

**Loughborough University**, Loughborough, England.

Teaching Assistant, Department of Computer Science.

[Sep. 2009]

Duties included guiding and helping students, leading computer lab exercises.

### **Teaching Experience:**

- ⊗ [Embedded Systems](#). Sample Projects on [YouTube Channel](#).
- ⊗ [Applied Probability for Engineers](#).
- ⊗ [Digital Design](#).
- ⊗ [Linear Algebra for Engineers](#).
- ⊗ [Electric Circuits](#).
- ⊗ Communication Networks.
- ⊗ Communication Networks (Graduate Level).
- ⊗ Computer Networks.
- ⊗ Statistical Methods for Engineers.
- ⊗ Technical Writing and Communication Skills for Engineers.
- ⊗ Communication Networks – Graduate Course.
- ⊗ Microprocessors and Embedded Systems.
- ⊗ Python 3 for Scientists and Engineers.
- ⊗ Computer Skills – C/C++ Programming for Engineers.
- ⊗ Object-Oriented Programming – C++ .
- ⊗ Computer Networking Protocols.
- ⊗ Distributed Systems and Parallel Processing.
- ⊗ Computer Networks Security and Data Protection.
- ⊗ Computer Networks Programming.
- ⊗ Mobile Computing.
- ⊗ Data Communications Systems.
- ⊗ Distributed Systems and Parallel Processing LAB.
- ⊗ Microprocessors LAB.
- ⊗ Embedded Systems LAB.
- ⊗ Object-Oriented LAB.
- ⊗ Computer Networks LAB.

### **MSc. Supervision:**

- ⊗ “Performance Evaluation of Congestion Control Mechanisms in IoT Networks within Fog/Edge Computing”.

### **Senior-Design Projects:**

- ⊗ “Design of a Network Intrusion Detection System Using Pattern Matching”.
- ⊗ “Three Different Designs and Implementations of a One-Unit Digital Oscilloscope and Function Generator”.
- ⊗ “Design and Implementation of an Unmanned Ground Vehicle with Virtual Reality Vision”.
- ⊗ “Design and Implementation of a Smart Wireless Coach Assistant for the Olympic Sport of Fencing”.
- ⊗ “Design and Implementation of Medicine Dispensing System”.
- ⊗ “Design and Implementation of Automatic Drive Through Mini-Market”.
- ⊗ “Two Different Designs and Implementations of a Smart Home Security System”.
- ⊗ “Design and Implementation of a PIC Emulator”.

### **Administrative Work:**

- ⊗ Member of Faculty Council of King Abdullah II Faculty of Engineering. Academic year 2016/2017.
- ⊗ Trustee of the Computer Engineering Department Council. Academic year 2015/2016.
- ⊗ Analysis of ABET's CAF reports for taught courses and senior design projects in the Computer Engineering Department.
- ⊗ Member of Academic Curricula and Programmes Committee of King Abdullah II Faculty of Engineering. Academic year 2016/2017.

### AWARDS

- ⊗ PhD Studentship, Loughborough University, Loughborough, UK.
- ⊗ Early PhD Thesis Submission Award, Loughborough University, Loughborough, UK.
- ⊗ National Technology Parade (NTP10 a recognised national-wide competition in Jordan held at the German University in Jordan in 2017) Best Project Award (2<sup>nd</sup> place) for the project: "Design and Implementation of a Smart Wireless Coach Assistant for the Olympic Sport of Fencing".
- ⊗ BEng. Honours' List Award, PSUT, Amman, Jordan.

### CONFERENCES

- ⊗ International Conference on Advanced Communications Technologies and Networking (CommNet), Rabat, Morocco, April, 2019.
- ⊗ IEEE Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA), Las Vegas, USA, April, 2019.
- ⊗ Jordan International Cyber Security Conference, Amman, Jordan, December, 2017.
- ⊗ Wireless Advanced (Formerly SPWC), Kings College, London, UK, June, 2010.
- ⊗ International conferences on Internet Technologies and Applications (ITA 09), Wrexham, North East Wales, UK, September, 2009.
- ⊗ 16th International Conference on Computer Communications and Networks (ICCCN), Honolulu, Hawaii, USA, August, 2007.

### PUBLICATIONS

- ⊗ A. TAHAT, F. WAHHAB, T. A. EDWAN An Exemplification of Decisions of Machine Learning Classifiers to Predict Handover in a 5G/4G/3G Cellular Communications Network, *2024 International Workshop on Advancements in AI-enabled Telecom Networks*, May 2024, Montreal, Canada. (Accepted).
- ⊗ A. TAHAT, T. A. EDWAN, ET AL. A Versatile Machine Learning-Based Vehicle-to-Vehicle Connectivity Model, *Wireless and Mobile Computing, Networking and Communications (WiMob 2023)*, pp. 243-248, 2023, Montreal, Canada.
- ⊗ A. AL SHARAH, H. ABU OWIDA, T. A. EDWAN Aggressive Jamming Attack in IoT Networks, *2022 4<sup>th</sup> IEEE Middle East and North Africa COMMunications Conference (MENACOMM)*, pp. 235-239, January, 2022, Amman, Jordan.
- ⊗ A. AL SHARAH, H. ABU OWIDA, T. A. EDWAN, F. ALNAIMAT A Cooperative Smart Jamming Attack in Internet of Things Networks, *Journal of information and communication convergence engineering*, Vol 20, No. 4, pp. 250-258-6, December, 2022.
- ⊗ A. EDWAN, T., PHILLIPS, I., GUAN, L., CROWCROFT, J., TAHAT, A. Revisiting Legacy High-Speed TCP Congestion Control Variants: An Optimisation-Theoretic Analysis of Multi-Mode TCP. *Simulation Modelling Practice and Theory*, Elsevier, 2022.
- ⊗ BANI-YASEED, T., TAHAT, A., KASTELL, K., EDWAN, T. Denial-of-Sleep Attack Detection in NB-IoT Using Deep Learning. *Journal of Telecommunications and the Digital Economy*, 2022.
- ⊗ A. TAHAT, R. AWWAD, N. BAYDOUN, S. AL-NABIH, T. A. EDWAN An Empirical Evaluation of

- Machine Learning Algorithms for Indoor Localization using Dual-Band WiFi, *2<sup>nd</sup> European Symposium on Software Engineering*, Association for Computing Machinery (ACM), pp. 1-6, November, 2021.
- ⊗ M. BAYYAT, M., ALDABBAS, L., AYOUB, N., AL-TAHAN A., A. EDWAN, T. Foil Performance Monitoring Vest; An Interactive Training System for the Olympic Sport of Fencing, *International Journal of Innovation, Creativity and Change*, Vol. 15, Issue 3, pp. 623-642, March, 2021.
  - ⊗ A. EDWAN, T., TAHAT, A., YANIKOMEROGLU, H., CROWCROFT, J. An Analysis of a Stochastic ON-OFF Queueing Mobility Model for Software-Defined Vehicle Networks, *IEEE Transactions on Mobile Computing*, 2020.
  - ⊗ TAHAT, A., ERSAN, B., AL-MUHESEN, L., SHAKSHIR, Z., A. EDWAN, T. A Compact 38 GHz millimeter Wave MIMO Antenna Array for 5G Mobile Systems, *Journal of Telecommunications and the Digital Economy (JTDE)*, August, 2020.
  - ⊗ A. EDWAN, T., TAHAT, A., HAMOURI, S., HASHEM, L., DA'BOUL, L. An Intelligent and Automated Approach for Smart Minimarkets, *International Journal of Computational Intelligence Systems*, June, 2020.
  - ⊗ TAHAT, N., TAHAT, A., ALBADARNEH, R., A. EDWAN, T. Design of Identity-Based Blind Signature Scheme Upon Chaotic Maps, *International Journal of Online and Biomedical Engineering (IJOE)*, Vol. 5, pp. 1-18, May, 2020.
  - ⊗ TAHAT, A., A. EDWAN, T., AL-SAWWAF, H., AL-BAW, J., AMAYREH, M. Simplistic Machine Learning-Based Air-to-Ground Path Loss Modeling in an Urban Environment, In *The Fifth IEEE International Conference on Fog and Mobile Edge Computing (FMEC 2020)*, July, 2020, pp. 1-6.
  - ⊗ TAHAT, A., A. EDWAN, T., MURAR, N., QUTOB, O., AYMAN, L., MBAIDEEN, D. Optimal Decision on Placement of an Auxiliary Wireless Aerial Base Station using Artificial Bee Colony Algorithm, In *2019 International Conference on Advanced Communications Technologies and Networking (CommNet)*, Rabat, Morocco, April, 2019, pp. 1-6.
  - ⊗ TAHAT, A., ABUKHALAF, M., A. EDWAN, T., SARAIREH, O. Uncovering Age Progression in Wireless Signal Propagation Modeling using Decisions of Machine Learning Classifiers, In *2019 IEEE Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA)*, Las Vegas, USA, April, 2019, pp. 153-158.
  - ⊗ A. EDWAN, T. A Stochastic Model for Multi-Operational-Mode TCP in High-Speed Networks, *The CSI Journal on Computer Science and Engineering (JCSE)*, Vol. 16, No. 1, December, 2018.
  - ⊗ A. EDWAN, T., ET AL. Unmanned Ground Vehicle with Virtual Reality Vision, *Jordanian Journal of Computers and Information Technology (JJCIT)* Vol. 4, No. 1, April, 2018.
  - ⊗ A. EDWAN, T. Improved Algorithms for TCP Congestion Control, *Ph.D. dissertation, Department of Computer Science*, Loughborough University, UK, 2010.
  - ⊗ A. EDWAN, T., GUAN, L., OIKONOMOU, G., AND PHILLIPS, I. W. Understanding the Impact of Link Errors on TCP Congestion Control, In *Proc. 26<sup>th</sup> UK Performance Engineering Workshop (UK PEW 2010)*, University of Warwick, Coventry, UK, June, 2010. (in press).
  - ⊗ A. EDWAN, T., GUAN, L., OIKONOMOU, G., AND PHILLIPS, I. W. Higher Order Delay Functions for Delay-Loss Based TCP Congestion Control, In *Proc. 6<sup>th</sup> Wireless Advanced (Formerly SPWC)*, Kings College, London, UK, June, 2010. (in press).
  - ⊗ A. EDWAN, T., GUAN, L., AND PHILLIPS, I. Is Noise Always a Bad Signal? An Adaptive Multiplicative Decrease for TCP-Reno using Noise Quantification, In *International conferences on Internet Technologies and Applications (ITA 09)*, Wrexham, North East Wales, UK, September, 2009.
  - ⊗ A. EDWAN, T., GHITA, B., AND WANG, X. DSP-based Bottleneck Bandwidth Estimation, *Simulation Modelling Practice and Theory* 17, 3, March, 2009, 538–547.
  - ⊗ A. EDWAN, T., GHITA, B., AND WANG, X. Bottleneck Bandwidth Estimation Using Frequency Analysis, In *ICCCN (2007)*, IEEE, pp. 1204–1209.

## SELECTED PRESENTATIONS/LECTURES

“Design and Implementation of TCP-Illinois<sup>n</sup> and TCP-Gentle”. Next Generation Networking:  
Multi-Service Networks Workshop, Cosener’s House, Abingdon, England. [Aug. 2010]

“Can TCP Win the High-Speed Race?” Department of Computer Science, University College London  
(UCL), England. [Sep. 2010]

## WORK EXPERIENCE

National Information Technology Centre, Amman, Jordan.

**Computer Networks Engineer**

[Jul. 2002 – Aug. 2005]

## SKILLS

- ⊗ GNU/Linux user.
- ⊗ Programming Languages: Python 3, C/C++ and Assembly.
- ⊗ Other software tools: L<sup>A</sup>T<sub>E</sub>X2e and R.

## LANGUAGES

- ⊗ Arabic.
- ⊗ English.

## REFERENCES

Dr Iain Phillips

Affiliation: Department of Computer Science, Loughborough University.

WWW: [Website](#).

Dr Lin Guan

Affiliation: Department of Computer Science, Loughborough University.

WWW: [Website](#).

Prof. Hisham Ghassib

Affiliation: Princess Sumaya University for Technology.

WWW: [Website](#).

Prof. Ahmad Hiasat

Affiliation: Department of Computer Engineering, Princess Sumaya University for Technology.

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Dr Bogdan Ghita

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