
ABDULBASET HAMED

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CAREER HIGHLIGHTS

- Research experience including modelling, analysis and design of communication systems and networks with more than 17 publications for total citations of 117 and Research Gate interest score 65.5.
- Teaching experience in diverse engineering topics such as digital signal processing, electrical circuits, control systems, digital logic systems, communication systems and advanced systems
- Capacity to teach several courses in-classroom and online environments at the same term
- Skills in management and leadership in both industry and academic sectors
- Proficient in writing technical reports, proposals and in delivering workshops and presentations
- Capability in building robust connection and establishing extensive working networks with industry companies in field of study and research
- P. Eng. Ontario (100548856)

EDUCATION

Doctor of Philosophy in Electrical and Computer Engineering **Sep. 2013- Nov. 2018**

Department of Electrical and Computer Engineering, Western University, London, ON

- Specialization: Sustainable developments; Energy efficient design of communication systems; Modelling and analysis digital communication networks; Spectral efficient design; propagation environment models

Master of Science in Electrical and Communication Engineering **Sep. 2004- Aug. 2008**

Department of Electrical and Electronic Engineering, Tripoli University, Tripoli, Libya; verified and accepted by Professional Engineers Ontario.

- Specialization: Modelling and design of cellular and satellites systems; Performance analysis; Delay and throughput evaluation;

Bachelor of Science in Electrical and Control Engineering **Sep. 1988- Nov. 1993**

Department of Electrical and Electronic Engineering, Tripoli University, Tripoli, Libya; verified and accepted by Professional Engineers Ontario.

- Specialization: State-Space Representation; Modern Control Systems; Performance analysis;

TEACHING EXPERIENCE

Teaching Assistant for Introduction to Electrical Engineering **Winter 2014**

Department of Electrical and Computer Engineering, Western, London, ON

- Supervised course Lab including simulation the electrical circuits, build actual circuits, discussion sessions for comparing simulation and Lab results.
- Delivered tutorials and open discussion sessions related to assignment problems, and preparation for exams.
- Marked Lab reports and assignments for up to 20 students.

Teaching Assistant for Programming Fundamentals for Engineers C++ **Fall 2014**

Department of Electrical and Computer Engineering, Western, London, ON

- Prepared Lab coding assignments and quizzes.
- Supervised about 15 students during Lab sessions and provided helpful support.
- Helped for critical thinking and come up with innovative ideas.
- Marked assignments and Lab reports, provided detailed feedback for professional coding.

Teaching Assistant for Circuits and Systems **Winter 2015**

Department of Electrical and Computer Engineering, Western, London, ON

- Managed TA team for providing better support for students.
- Prepared and corrected assignments and quizzes, providing useful comments.
- Supervised students during Lab sessions and provided helpful support.
- Helped for critical thinking and come up with innovative ideas.
- Marked assignments and Lab reports, provided detailed feedback for more than 25 students.

Teaching Assistant for Digital Logic Systems **Fall 2015**

Department of Electrical and Computer Engineering, Western, London, ON

- Prepared digital logic design problems.
- Organized group meeting of critical and innovative thinking for state-of-art design.
- Supervised 8 students during Lab sessions and provided helpful support.
- Marked assignments and Lab reports, provided detailed feedback.

Teaching Digital Communication Systems **Winter 2016 /Winter 2017**

Department of Electrical and Computer Engineering, Western, London, ON

- Prepared Lab design assignments for modern digital communication systems.
- Delivered lectures and tutorial sessions for explaining course projects and assignments.
- Facilitated difficulties of up-to-date course projects during regular group meetings.
- Evaluated assignments, Lab reports and Projects for 20 students.

Teaching Electrical Laboratory **Fall 2016**

Department of Electrical and Computer Engineering, Western, London, ON

- Supervised students during Lab sessions and provided helpful support.
- Facilitated difficulties of Lab projects by organized group meetings.
- Marked assignments and Lab reports, provided detailed feedback for 15 students.

Instructor for Signals and Systems **Fall 2011/Fall 2009/Winter 2009**

Department of Electrical and Electronic Engineering, Tripoli University, Tripoli, Libya

- Prepared course material including engaging presentations; implemented effective teaching skills including up-to-date simulation tools and practical examples.
- Delivered classes and tutorial on weekly basis.
- Prepared and marked assignments, tests and final exam for more than 80 students.

Instructor for Active Networks **Fall 2023/Spring 2024**

Department of Electrical and Electronic Engineering, Tripoli University, Tripoli, Libya

- Prepared course material including engaging presentations; implemented effective teaching skills including up-to-date simulation tools and practical examples.
- Delivered classes and tutorial on weekly basis.
- Prepared and marked assignments, tests and final exam for more than 80 students.

RESEARCH EXPERIENCE

My research experience is based on coordination industry challenges with academic research to find innovation solutions, interpreting the complex industry problems into handled research topics. My research interests center around the analysis and design of energy efficient communication systems, IoT, V2X communications.

Spectral and Energy Efficient Communication Systems and Networks **Fall 2015-Fall 2018**

Department of Electrical and Computer Engineering, Western, London, ON

- Developed new approaches for evaluating modern communication systems performance in different propagation environment.
- Introduced adaptive technique to enhance energy efficient communication system design.
- Proposed trade-off methods leading to efficient design of next generation cellular networks.
- Presented new framework for design and analysis of cellular mobile systems for several antenna configurations for saving transmission power consumption.
- Modelled and investigated multi-user mobile networks for efficient design.
- Presented efficient approach in analysis and design millimeter wave communication systems.
- Collaborated in research for developing OFDM system.

OTHER RESEARCH EXPERIENCE

Researcher assistant **2019-Current**

Department of Electrical, Umm Al-Qura University, Saudi Arabia

- Prepared a research project proposal, "End-to-End Modelling and Analysis of IoT for Critical Data", and the proposal has been approved.
- Addressing and analyzing potentials and challenges of IoT and M2M communication for wireless and satellite links.
- Working on efficient design of IoT over multicell multi-user MIMO cellular systems for different propagation environments.
- Working on efficient utilization of mm-Wave band in 5G networks

Researcher **Fall 2016**

Innovation Center for Information Engineering, Western, London, ON

- Utilized wireless networks in smart grid electrical power for decrease power outage.
- Collaborated research in wireless HANs in smart grids over fading channels subjected to multiple access schemes and interference.

Researcher **Fall 2006-Fall 2008**

Department of Electrical and Electronic Engineering, Tripoli University, Tripoli, Libya

- Modelled, analyzed and designed cellular satellite communication systems for real-time services in various earth orbits.

PUBLICATIONS

- Published over 17 articles including technical reports, book chapter, journal papers and conference papers in field of design efficient wireless and satellite communication systems in IEEE, Springer and Elsevier, https://www.researchgate.net/profile/Abdulbaset_Hamed, <https://scholar.google.com/citations?hl=en&user=xTiDUx8AAAAJ>, in which my Research Gate score is 5.15.

JOURNAL ARTICLES

- **Hamed, A.**, and Rao, R.K., "Spatial Spectral and Energy Efficiencies of Cellular Networks Limited by Co-channel Interference and Path Loss in Nakagami-m Fading Environment," EURASIP Journal on Wireless Communications and Networking, vol. 2018, no.1, pp. 118-134, 2018.
- **Hamed, A.**, and Rao, R.K., "Spectral and Energy Efficiencies in mmWave Cellular Networks for Optimal Utilization," Wireless Communications and Mobile Computing, Hindawi, vol. 2018, pp. 1-12 April 2018.
- **Hamed, A.**, and Rao, R.K., "Energy and Spectral Efficiencies of M-CPFSK in Fading and Shadowing Wireless Channels," Physical Communication Journal, Elsevier, 2018, pp.1-9.
- **Hamed, A.**, Alsharef, M. and Rao, R.K., "Analysis of Energy and Spectral Efficiency in Urban Shadowing Environment," IAENG International Journal of Computer Science, vol. 43, no.2, pp. 237-244, Jun 2016.

BOOK CHAPTER

- Alsharef, M., **Hamed, A.**, and Rao, R.K. "Spectral Properties and Error Rate Performance of Digital Chirp Communication System." In The World Congress on Engineering and Computer Science, Transactions on Engineering Technologies, pp. 267-288. Springer, Singapore, 2015.

CONFERENCE PAPERS

- **Hamed, A.**; Rao, R.K., "Energy and spectral efficiency in cellular networks considering fading, path loss, and interference." In Electrical and Computer Engineering (CCECE), pp. 1-5. IEEE, 2017.
- Shafter E., **Hamed, A.M.**, Rao, R.K., "PAPR and BER performance analysis of OFDM system with multi-h CPFSK mapper." In Electrical and Computer Engineering (CCECE), 2017 IEEE 30th Canadian Conference on, pp. 1-4. IEEE, 2017.
- Noorwali A., **Hamed, A.M.**, Rao, R.K., "Modelling and Delay Analysis of Wireless HANs in Smart Grids over Fading Channels," Electrical and Computer Engineering (CCECE), 2016 IEEE 29th Canadian Conference, pp. 1-6, IEEE, 2016.
- **Hamed, A.**, Rao, R.K., "Bandwidth and Power Efficiency Analysis of Fading Communication Link," The Society for Modeling and Simulation International, 2016 Summer Simulation Multi-Conference (SummerSim'16), pp. 1-7. IEEE, 2016.
- **Hamed, A.**, Rao, R.K., "Evaluation of Capacity and Power Efficiency in Millimeter-Wave Bands," The Society for Modeling and Simulation International, 2016 Summer Simulation Multi-Conference (SummerSim'16), pp. 1-6. IEEE, 2016.
- **Hamed, A.**, Noorwali, A., and Rao, R.K., "Energy efficient adaptive transmission in generalized-K fading channel." Electrical and Computer Engineering (CCECE), 2016 IEEE Canadian Conference on, pp. 1329-1334, IEEE, 2016.
- **Hamed, A.M.**; Sigiuk, H.,; Rao, R.K., "End-to-End Delay, Throughput, and Performance Analysis of Satellite-UMTS Telecommunication Networks," Electrical and Computer Engineering (CCECE), IEEE 28th Canadian Conference, pp. 1369-1373, IEEE, 2015.
- **Hamed, A.**, Alsharef, M.A, and Rao, R.K., "MGF Based Performance Analysis of Digital Wireless System in Urban Shadowing Environment," Lecture Notes in Engineering and Computer Science:

- Proceedings of The World Congress on Engineering and Computer Science, pp. 679-684, 2015.
- Alsharef, M., **Hamed, A.**, and Rao, R.K., "Error Rate Performance of Digital Chirp Communication System over Fading Channels," Lecture Notes in Engineering and Computer Science: Proceedings of The World Congress on Engineering and Computer Science, 2015, pp. 727-732, 2015.
 - **Hamed, A.**, Alsharef, M.,; Rao, R.K., "Bit Error Probability Performance Bounds of CPFSK over Fading Channels," Electrical and Computer Engineering (CCECE), 2015 IEEE 28th Canadian Conference, pp. 1329-1334, IEEE, May 2015.
 - **Hamed, A.**, Rao, R.K. and Primak, S.L., "Adaptive multidimensional modulation over faded shadowing channels," Electrical and Computer Engineering (CCECE), 2014 IEEE 27th Canadian Conference on , vol., no., pp. 1-4, 4-7 May 2014.

INDUSTRY EXPERIENCE

Satellite Control Engineer | Rascomstar and Thales Alenia Space, Gharyan, Libya and Cannes, France

May 2008 – Aug 2012

- Analyzed and prepared procedures for orbit and attitude satellite control using orbital dynamic simulator (ODS) and procedure generation environment (PGE) software for several satellite platforms.
- Supervised regular satellite check operations, periodic equipment checks, switching redundant equipment, eclipse etc.
- Prepared and performed satellite payload procedures, switching power amplifiers, adjusted transmitted power.
- Collaborated in predesign review (PDR) of satellite network over Rascomsatr satellite with ViaSat companies for delivering mobile and internet services across Africa using low transmitted power and less occupied bandwidth.
- Reviewed fault detection, isolation and recovery (FDIR) procedures for satellite subsystems that ensure fast and steady satellite recovery to return it back to nominal mode.
- Prepared quarterly, annually and anomalous reports for satellite subsystems.
- Coordinated maintenance of satellite control center earth station including, baseband, RF and antenna subsystems that maintained such system to work perfectly during my job time.

Head of Domestic Satellite Service Division | Hatif Libya (GPTC), Tripoli, Libya **Nov 2006 – Apr 2008**

- Presented and supervised satellite networks for new services requirements such as extension existing mobile networks for remote regions.
- Proposed and coordinated upgrade domestic satellite system project to carry Libyan GSM and Hatif Libya PSTN and CDMA services in remote regions that saved about \$ 1.25 million equipment cost and provides about \$ 750K as revenue.
- Organized reallocate carriers in leased C and Ku satellite bands for all Libyan company and institutes such as LTT, Central bank of Libya, Libyan Civil Aviation Authority and GPTC, that save about 6 MHz band in Intelsat and 3 MHz in Arabsat satellites.
- Oversaw installation of PolarSat VSAT project including 23 sites for oil and gas companies.
- Collaborated with LTT company in DVB-RCS project to provide internet services over satellite.

Senior Satellite Communication Engineer | Hatif Libya (GPTC), Tripoli, Libya **Dec 1998 – Oct 2006**

- Worked in space department for Intelsat and Arabsat satellite earth stations ground segment for different satellite bands as operation and installation engineer for Alcatel and NEC systems

including satellite modems, up- and down-converters and power amplifiers.

- Supervised a working shift includes five employees, organized and distributed their jobs and reported earth station status and work that has been done.
- Set up lineup for new satellite link service and link budget analysis.
- Operated and managed occasional TV satellite services for fixed and mobile stations.

Senior Satellite Communication Engineer - Continued

- Organized leased satellite frequency bandwidth resources for efficient use in domestic satellite services.
- Performed periodic measurements and maintenance for earth station equipment, baseband, RF and antenna.
- Trained new employees for using measurement equipment such as spectrum analyzer, power meters and link tester.
- Innovated an approach of using satellite modem to carry mobile.

GRANITA, HONORS & AWARDS

Conference Best Paper Award	2015
International Association of Engineers	
Student Best Paper Award	2015
International Association of Engineers	
Conference Travel Award	2014, 2015, 2016, 2017
Department of Electrical and Computer Engineering, Western, London, Canada	
Scholarship	2013-2018
Canadian Bureau for International Education Award (CBIE)	

PROFESSIONAL DEVELOPMENT

Satellite Operation and Control	2008-2009
Thales Alenia Space, Cannes, France	
Advanced Computing for Mobile and Satellite	2006
Multimedia College, Kuala Lumpur, Malaysia	
Cisco Certified Network Associate Voice over Internet Protocol	2005
General Post Telecom, Tripoli, Libya	
Satellite Digital Video Broadcasting	2002
NEWTEC, Sint-Niklaas, Belgium	

SERVICE & LEADERSHIP EXPERIENCE

Reviewer Member

- IEEE Transactions on Green Communications and Networking **2016 - present**
- IETE Journal of Education **2016 - present**
- CCECE conferences **2015/2016/2017**

Committee Member

- IEEE Young Professionals, London, ON **2014 - 2018**
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