

YOUSEF FAZEA

Assistant Professor

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ABOUT ME

Yousef Fazea is Assistant Professor at the Computer and Information Technology Department, Marshall University, West Virginia, USA. He received his B.E. and M.S. in Information Technology and PhD in Computer Science from the Universiti Utara Malaysia (UUM), Kedah, Malaysia. He has published more than 51 peer review scientific papers. Two of his papers was designated as the best paper award in the IEEE Symposium on Computer Applications & Industrial Electronics (ISCAIE 2017) and International Conference on Computer and Information Sciences (ICCIS2020). In addition, he has won the Bronze Medal in the Malaysian Innovation Research, Invention, and Application Exhibition (I-RIA) in 2019. He is a member of IEEE and actively involved in IEEE activities as an executive and counsellor for IEEE UUM SB for two consecutive terms. In addition, he is a member of IAES, IAENG. He serves as a reviewer for IEEE Internet of Things Journal, IEEE Network Magazine, IEEE Access, International Journal of Electronics and Communications-Elsevier, Optical Engineering SPIE, Microwave and Optical Technology Letters, Optik - International Journal for Light and Electron Optics, Fibre and Integrated Optics. His research area of interest including, next-generation computing and telecommunication and Integrated Optics, Data Multiplexing, Wireless/optical sensors applications, digital signal processing and channel modelling using different types of algorithms such as DNA, NN, Fuzzy algorithm. Future Internet D2D communication, High computing performance, digital communication networks, SDN, ICN, and network security.

TEACHING PHILOSOPHY

First and foremost, teaching is based on 3 pillars – (Introduction),) Understanding), and) co-operative and compassionate human).

- *Introduction* – first, I must get to know my students – their strengths, weaknesses, likes, dislikes, family background – as best I can, so that I may help them to grow, tolerate their weakness, and empower their strength.
- *Understanding* – I believe in making learning relevant to my students. This entails tailoring and adapting the curriculum to their current social circumstances as well as cultural backgrounds.
- *Co-operative and compassionate human beings* – the ultimate objective of teaching and learning is to develop compassionate human beings, who care for one other, care and love their fellow friends as much as they care and love themselves.

The new insight that I have acquired is that there are certain teaching approaches that I have found to be useful and effective in my teaching and learning experiences. I have seen that students learn and absorb new topics better using graphical pictorial examples, metaphors than simply audio-visual cues. In addition, I have found that explanations are considerably more powerful when related to a real-life physical example. Applying the concepts to applications allow students to be able to correlate the importance of academic knowledge for solving real-world problems. Moreover, I consider conceptual learning to be more valuable than just memorizing. Hands-on experience and collaborative discussions, in my view, play an essential part in the learning process. Furthermore, I prefer to emphasize active learning by immersing students in small-scale and long-term projects. This will develop critical thinking, problem-solving, time management, and an inquisitive curiosity among students in coming up with innovative solutions.

RESEARCH INTEREST

- *Research Expert Area including:*
Wireless/optical sensors applications, DSP, and channel modeling. Future Internet D2D communication, IoT Communication, Network communication and Security, high computing performance, next-generation computing, telecommunication, and Integrated Optics.

AWARDS, HONORS AND FELLOWSHIPS

2020	Best Paper Award in IEEE ICCIS2020.
2020	Excellent Service award for the year 2020 from SOC, UUM, Malaysia
2019	Bronze Medal from Innovation Research, Invention and Application Exhibition, UUM, Malaysia.
2017	Best Paper Award in IEEE ISCAIE2017.

PROFESSIONAL SOCIETY MEMBERSHIPS

2014-Present	Institute of Electrical and Electronic Engineers, IEEE (Member Grade)
2018-Present	Internet Society Malaysian Chapter, ISOC Malaysia (Life Member Grade)
2015-Present	Institute of Advanced Engineering and Science, IAES (Member Grade)
2015-Present	International Association of Engineers, IAENG (Member Grade)

PROFESSIONAL SERVICES

- IEEE Internet of Things Journal, **reviewer**
- IEEE Network Magazine, **reviewer**
- IEEE Access Journal, **reviewer**
- Microelectronics Journal- Elsevier, **reviewer**
- Microwave and Optical Technology Letters, **reviewer**
- International Journal of Electronics and Communications-Elsevier, **reviewer**
- Optik - International Journal for Light and Electron Optics-Elsevier, **reviewer**
- Fibre and Integrated Optics-Taylor and Francis, **reviewer**

PUBLICATIONS

Patents

1. **Yousef Fazea** "Singular Value Decomposition-Based Orbital Angular Momentum Space Division Multiplexing Model in Few Mode Fiber" (Accepted by ICC UUM and TERAJU IP SDN BHD, to be published by IPO Malaysia, **2020**). Reference Number: [UUM/PAT/013](#) (Under review)
2. **Yousef Fazea** "Orbital Angular Momentum-Based Space Division Multiplexing Equalizer for Free Space Optical-Transmission" (Accepted by ICC UUM and TERAJU IP SDN BHD, to be published by IPO Malaysia, **2018**). Reference Number: [UUM/PAT/012](#) (Registered)

Copyrights

1. **Yousef Fazea** "W-MDM Model", MyIPO, **2018**, Registration Number: [LY2018002824](#)
2. **Yousef Fazea** "Direct Detection Spot Mode Division Multiplexing in Multimode Fiber with Equalization", MyIPO, **2018**, Registration Number: [LY2018007042](#)

Books

1. **Yousef Fazea (Author No 5)** "Network Application for Management Module" School of Computing, **2018** UUM CAS, ISBN: 9789672276005
2. Angela Amphawan, **Yousef Fazea**, Kashif Nisar "Optical Vortices in Wavelength Division Multiplexing Passive Optical Networks" IISTE, ISBN-10: 1622650816, ISBN-13: 9781622650811, 13 August **2012**. <https://www.amazon.com/Vortices-Wavelength-Division-Multiplexed-Networks/dp/1622650816>

Book Chapters

1. Ibrahim Abdullahi, A. Suki M. Arif and **Yousef Fazea** "Scheduling Criteria Evaluation with Longer Job First in Information Centric Network", in Emerging Trends in Intelligent Computing and Informatics, Cham, **2020**, pp. 604-614. https://link.springer.com/chapter/10.1007/978-3-030-33582-3_56
2. Omar Dakkak, Shahrudin Awang Nor, Suki Arif, **Yousef Fazea** "Improving QoS Using Backfilling Technique and Completion Time Scheme in Computational Grid", in Emerging Trends in Intelligent Computing and Informatics, Cham, **2020**, pp. 557-568.
3. W. M. Alsharafī, M. N. Omar, N. A. Al-Majmar, and **Yousef Fazea** "Normal Profile Updating Method for Enhanced Packet Header Anomaly Detection," in Emerging Trends in Intelligent Computing and Informatics, Cham, **2020**, pp. 734-747. https://link.springer.com/chapter/10.1007/978-3-030-33582-3_69
4. Angela Amphawan, **Yousef Fazea**, and Mohamed Elshaikh "Space Division Multiplexing in Multimode Fiber for Channel Diversity in Data Communications." Advanced Computer and Communication Engineering Technology. Springer International Publishing, vol. 362, pp. 355-363, (**2016**), DOI: 10.1007/978-3-319-24584-3_29. https://link.springer.com/chapter/10.1007/978-3-319-24584-3_29

Technical Report

1. **Yousef Fazea** "Performance Investigation of 16×40 Gbit/s Dense Wavelength Division Multiplexing-Passive Mux/Demux for Rural Area Networks," InterNetWorks Research Laboratory, School of Computing, Universiti Utara Malaysia, [Tech Rep. 3](#), **2017**.

Articles published in internationally refereed journals and Indexed in SCOPUS and Web of Science (ISI, SCL, SSCI)

1. Maache, M., **Yousef Fazea**, Bile Hassan, I., Alkahtani, A.A., Ud Din, I. "High-Sensitivity Capsule-Shaped Sensor Based on 2D Photonic Crystals". Symmetry **2020**, 12, 1480. DOI: [10.3390/sym12091480](https://doi.org/10.3390/sym12091480) [**Indexed by ISI and SCOPUS, IF. 2.645**] <https://www.mdpi.com/2073-8994/12/9/1480>
2. Madi, M., Jarghon, F., **Yousef Fazea**., Almomani, O., & Saaidah, A "Comparative analysis of classification techniques for network fault management". Turkish Journal of Electrical Engineering & Computer Sciences, 28(3), 1442-1457, **2020**. [10.3906/elk-1907-84](https://doi.org/10.3906/elk-1907-84) [**Indexed by ISI and SCOPUS, IF. 0703**] <https://journals.tubitak.gov.tr/elektrik/issues/elk-20-28-3/elk-28-3-17-1907-84.pdf>
3. Al-Samman, A. M., Azmi, M. H., Al-Gumaei, Y. A., Al-Hadhrami, T., **Yousef Fazea**., & Al-Mqdashi, A. "Millimeter Wave Propagation Measurements and Characteristics for 5G System" Applied Sciences, 10(1), 335. **2020**, DOI: [10.3390/app10010335](https://doi.org/10.3390/app10010335) [**Indexed by ISI and SCOPUS, IF. 2.217**]. <https://www.mdpi.com/2076-3417/10/1/335>
4. Al-Gumaei, Y. A., Aslam, N., Al-Samman, A. M., Al-Hadhrami, T., Noordin, K., & **Yousef Fazea** "Non-cooperative power control game in D2D underlying networks with variant system conditions" Electronics, 8(10), 1113., **2019**, DOI: [10.3390/electronics8101113](https://doi.org/10.3390/electronics8101113) [**Indexed by ISI and SCOPUS, IF. 1.764**]. <https://www.mdpi.com/2079-9292/8/10/1113>

5. **Yousef Fazea** "Mode Division Multiplexing and Dense WDM-PON for Fiber-to-the-Home" Optik, Volume 183, April **2019**, Pages 994-998. DOI: [10.1016/j.jjleo.2019.02.072](https://doi.org/10.1016/j.jjleo.2019.02.072) [Indexed by ISI and SCOPUS, **IF. 1.191**]. <https://www.sciencedirect.com/science/article/abs/pii/S0030402619301895>
6. **Yousef Fazea** "Numerical simulation of helical structure mode-division multiplexing with nonconcentric ring vortices." Optics Communications, Volume 437, 15 April **2019**, Pages 303-311. DOI: [10.1016/j.optcom.2018.12.002](https://doi.org/10.1016/j.optcom.2018.12.002) [Indexed by ISI and SCOPUS, **IF. 1.887**]. <https://www.sciencedirect.com/science/article/abs/pii/S0030401818310514>
7. N. Al-Safwani, **Yousef Fazea**, and H. Ibrahim, "ISCP: In-Depth Model for Selecting Critical Security Controls" Computers & Security, 77(1), 565 - 577, **2018**. <https://doi.org/10.1016/j.cose.2018.05.009>. [Indexed by ISI and SCOPUS, **IF. 2.862**]. <https://www.sciencedirect.com/science/article/pii/S0167404818305534>
8. **Yousef Fazea**, Mezhyuevb. V "Selective mode excitation techniques for mode-division multiplexing: A critical review" Optical Fiber Technology, 45(0), 280 - 288, **2018**. <https://doi.org/10.1016/j.yofte.2018.08.004>. [Indexed by ISI and SCOPUS, **IF. 1.642**]. <https://www.sciencedirect.com/science/article/pii/S1068520018301536>
9. Angela Amphawan, **Yousef Fazea** "Laguerre-Gaussian Mode Division Multiplexing in Multimode Fiber using SLMs in VCSEL Arrays." Journal of the European Optical Society-Rapid publications, vol. 11, (**2016**) DOI: <https://doi.org/10.1186/s41476-016-0007-7> [Indexed by ISI, **IF. 1.213**]. <https://jeos.springeropen.com/articles/10.1186/s41476-016-0007-7>
10. Angela Amphawan, **Yousef Fazea** "Multi-Diameter Optical Ring and HG Vortices for WDM-MDM." Optical Engineering", vol. 55, no. 10, (**2016**), DOI: [10.1117/1.OE.55.10.106109](https://doi.org/10.1117/1.OE.55.10.106109) [Indexed by ISI, and SCOPUS, **IF. 1.082**]. <https://spie.org/publications/journal/10.1117/1.OE.55.10.106109?SSO=1>

Articles published in other internationally refereed journals Indexed in SCOPUS

1. Saab, M., Nor, S.A., **Yousef Fazea** "Software defined networking and open flow technologies: challenges and future directions of programmable networks.", Journal of advanced research in dynamical and control systems. 12(2), 809 - 817, **2020**. [Indexed by SCOPUS] <https://www.jardcs.org/abstract.php?id=4271>
2. Z. T. Ibraheem, M. M. Rahman, **Yousef Fazea**, and K. K. Ahmed, "PAPR Reduction in OFDM Signal by Incorporating Mu-Law Companding Approach into Enhanced PTS Scheme," to be published by Journal of Optical Communications, **2018**. <https://doi.org/10.1515/joc-2017-0215>. [Indexed by SCOPUS]. <https://www.degruyter.com/view/journals/joc/ahead-of-print/article-10.1515-joc-2017-0215/article-10.1515-joc-2017-0215.xml?language=en>
3. **Yousef Fazea**, Angela Amphawan "40Gbit/s MDM-WDM Laguerre-Gaussian Mode with Equalization for Multimode Fiber in Access Networks. Journal of Optical Communications. 39(2), 157 - 184, **2018**. DOI: <https://doi.org/10.1515/joc-2016-0138> [Indexed by SCOPUS]. <https://www.degruyter.com/view/journals/joc/39/2/article-p175.xml?language=en>
4. A. Fareed, A. Amphawan, **Yousef Fazea**, M. S. Sajat, and S. C. Chit, "Channel Impulse Response Equalization based on Genetic Algorithm in Mode Division Multiplexing," Journal of Telecommunication, Electronic and Computer Engineering (JTEC), 10 (2-4), 149-154, **2018**. [Indexed by SCOPUS] <https://journal.utem.edu.my/index.php/jtec/article/view/4334>

5. **Yousef Fazea**, Mustafa Muwafak Alobaedy, Zeyid T. Ibraheem "Performance of a Direct-Detection Spot Mode-Division Multiplexing in Multimode Fiber" Journal of Optical Communications, **2017**. DOI: <https://doi.org/10.1515/joc-2017-0135> [Indexed by SCOPUS]. <https://www.degruyter.com/view/journals/joc/40/2/article-p161.xml?language=en>
6. Abdullah Almogahed, Angela Amphawan, and **Yousef Fazea**. "Mitigation of Atmospheric Turbulences Using Mode Division Multiplexing based on Decision Feedback Equalizer for Free Space Optics." Journal of Optical Communications, **2017**. DOI: <https://doi.org/10.1515/joc-2017-0169> [Indexed by SCOPUS]. <https://www.degruyter.com/view/journals/joc/41/2/article-p185.xml?language=en>
7. **Yousef Fazea**, Angela Amphawan "MDM of Helical-Phased LG Mode in Multimode Fiber with Electronic Dispersion Compensation." Adv. Sci. Lett. 23, 29–34 (**2017**), DOI: <https://doi.org/10.1166/asl.2017.7176> [Indexed by SCOPUS]. <https://www.ingentaconnect.com/content/asp/asl/2017/00000023/00000001/art00008>
8. **Yousef Fazea**, Angela Amphawan, Hussein abulrejal "WDM-MDM in Access Networks." to be published in Adv. Sci. Lett, EISSN: 1936-6612, American Scientific Publisher, (**2017**) [Indexed by SCOPUS]. <https://www.ingentaconnect.com/content/asp/asl/2017/00000023/00000006/art00097>
9. Mohd Samsu Sajat, **Yousef Fazea**, Chit, S, Omar Dakkak "A Critical Review on Energy-Efficient Medium Access Control for Wireless and Mobile Sensor Networks" Journal of Telecommunication, Electronic and Computer Engineering (JTEC) 8.10 (**2016**): 89-94. [Indexed by SCOPUS].
10. **Yousef Fazea**, and Angela Amphawan "5× 5 25 Gbit/s WDM-MDM." Journal of Optical Communications, vol. 36, no. 4, pp.327-333, (**2015**), DOI:[10.1515/joc-2014-0091](https://doi.org/10.1515/joc-2014-0091). [Indexed by SCOPUS]. <https://www.degruyter.com/view/journals/joc/36/4/article-p327.xml>
11. Angela Amphawan, **Yousef Fazea**, Elfouly, Tarek, Abualsaud Khalid "Effect of Vortex Order on Helical-Phased Donut Mode Launch in Multimode Fiber." Adv. Sci. Lett. 21, 3042-3045 (**2015**), DOI: [10.1166/asl.2015.6517](https://doi.org/10.1166/asl.2015.6517). [Indexed by SCOPUS]. <https://www.ingentaconnect.com/content/asp/asl/2015/00000021/00000010/art00021>

Assertions presented in international scientific congresses and published in proceedings

1. Norsuhaila Hj Kasah, Azana Hafizah Mohd Aman, Zainab Senan Mahmod Attarbashi and **Yousef Fazea** "Investigation on 6LoWPAN Data Security for Internet of Things" 2020 International Conference on Computer and Information Sciences, Jouf University, Saudi Arabia, **2020 [Best paper award]**
2. **Yousef Fazea**, M. S. Sajat, A. Ahmad, and M. M. Alobaedy, "Channel optimization in mode division multiplexing using neural networks," IEEE 14th International Colloquium on Signal Processing & Its Applications (CSPA), 173-175, **2018**. <https://doi.org/10.1109/CSPA.2018.8368707> <https://ieeexplore.ieee.org/document/8368707/>
3. **Yousef Fazea**, Angela Amphawan. "32 channel DQPSK DWDM-PON for local area network using dispersion compensation fiber." In EPJ Web of Conferences, vol. 162, p. 01016. EDP Sciences, **2017**. https://www.epj-conferences.org/articles/epjconf/pdf/2017/31/epjconf_incape2017_01016.pdf
4. **Yousef Fazea**, Angela Amphawan, Osama Qtaish "Mode Division Multiplexing of Helical-Phased Spot Mode and Donut Mode in Multimode Fiber Interconnects "IEEE Symposium on Computer Applications & Industrial Electronics (ISCAIE 2017) 24th – 25th April, Langkawi, Malaysia, **2017 [Best paper award]** . <https://ieeexplore.ieee.org/document/8074977>

5. **Yousef Fazea**, Mohd Samsu Sajat, Suwannit Chareen Chit "16-Channels NRZ-DPSK DWDM for Rural Area Networks" International Conference on ICT for Transformation, Sabah, Malaysia, April 5th – 7th **2016**, <http://repo.uum.edu.my/23496/>
6. **Yousef Fazea**, Angela Amphawan "Spot Mode Excitation for Multimode Fiber". **2015** Fourth International Conference on Internet Applications, Protocols, and Services (NETAPPS2015), 1-3 December, Cyber Jaya, Malaysia, (2015). <http://repo.uum.edu.my/17190/>
7. Angela Amphawan, **Yousef Fazea**, Huda Ibrahim "Investigation of channel spacing for Hermite-Gaussian mode division multiplexing in multimode fiber." IEEE 11th International Colloquium on Signal Processing & Its Applications (CSPA2015), 6th-9th March, Kuala Lumpur, Malaysia, **2015**. <https://ieeexplore.ieee.org/abstract/document/7225614>
8. Angela Amphawan, **Yousef Fazea**, Huda Ibrahim "Mode division multiplexing of spiral-phased donut modes in multimode fiber." SPIE International Conference on Optical and Photonic Engineering (icOPEN2015). International Society for Optics and Photonics, Singapore, **2015**. <https://www.spiedigitallibrary.org/conference-proceedings-of-spie/9524/1/Mode-division-multiplexing-of-spiral-phased-donut-modes-in-multimode/10.1117/12.2187250.short?SSO=1>
9. Angela Amphawan, **Yousef Fazea**, Mohd Samsu Sajat "MDM of Hybrid Modes in Multimode Fiber." Proceeding of the Electrical Engineering Computer Science and Informatics, pp. 314-319, Indonesia, **2015**. <https://core.ac.uk/download/pdf/296975723.pdf>