Ahmed Almaiman Ph.D.

د. أحمد بن سامي الميمان، أستاذ مشارك

Vice Dean of Admission and Registration for Quality and IT
Associate Professor , Department of Electrical Engineering
Specialty: Optics, Optical Fiber, Communication Systems

وكيل عمادة القبول والتسجيل للتطوير وتقنية المعلومات
كلية الهندسة - قسم الهندسة الكهربائية
التخصص الدقيق: هندسة تقنيات الاتصالات عبر الألياف الضوئية

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EDUCATION:

- **Executive Leadership Program, Harvard Business School (HBS),** Boston, USA Date: Jun 2025
- **Ph.D., University of Southern California (USC),** Los Angeles, USA
  Major: Electrical Engineering Minor: Biomedical Engineering Date: May 2018
  Advisor: Alan E. Willner (Biographical Sketch , Google Scholar , E-mail: willner@usc.edu)
- **M.S., University of Southern California (USC),** Los Angeles, USA
  Major: Electrical Engineering- Communications Sciences Date: Sept 2014
- **B.S., King Saud University,** Riyadh, Saudi Arabia **(First Honor)**
  Major: Electrical Engineering, Communications and Electronics Date: June 2011

POSITION:

BEGINNING		END		POSITION	INSTITUTION
Jul	2023	Now		Associate Professor, Electrical Engineering Dept.	King Saud University
Mar	2023	Now		Vice Dean for Quality and IT, Deanship of Admission and Registration	King Saud University
Apr	2022	Dec	2023	Member, Colleges of Muzahimya Council	King Saud University
Sept	2021	Oct	2023	Member, Nuclear Engineering Program Council	King Saud University
Nov	2020	Mar	2023	Chairman, Electrical Engineering Department	King Saud University
Nov	2020	Mar	2023	Member, Colleges of Engineering Council	King Saud University
Oct	2018	Jul	2023	Assistant Professor, Electrical Engineering Department	King Saud University
Aug	2018	Feb	2020	Research Assistant (Postdoc)	University of Southern California (**USC**)
Jan	2018	Oct	2018	Lecturer, Electrical Engineering Department	King Saud University
Oct	2011	Jan	2018	Teaching Assistant, Electrical Engineering Department	King Saud University

HONORS, AWARDS AND ACTIVITIES:

2025	Receipient of Harvard Business Scholarship Award "*MBA Class of 1973 Fund for Social Enterprise"*
2024	Supervisor for the "*Best Capstone Project*" in the College of Engineering (Photo).
2024	Participate in Presenting the Workshop "Specialized Training Program in the Fields of Frequency Spectrum & Emerging Wireless Technologies" CST, Saudi Arabia (Certificate).
2021-2022	Instructor for the *Summer Training Program for Gifted Students* (MAWHIBA) (Certificate).
2010	Visiting Student Researcher at the Max Planck Institute for Quantum Optics (Summer 2010) as part of the KSU-MPQ Collaboration (News). Trained under the supervision of Prof. Ferenc Krausz, Nobel Prize Winner in 2023.
2009	Recipient of the "Best Student Award" in the College of Engineering at KSU (5 students awarded out of 600).
2007-2011	Member of the Founding Class of the Discovery Scholarship Program, King Abdullah University of Science and Technology (KAUST) (Award Certificate) (*now known as the KAUST Gifted Student Program (KGSP)*).
2007	Scored 93 out of 100 in the Saudi Aptitude Exam (Qudrat), placing in the top 0.25% (99.75th percentile).
2007	Scored 98 out of 100 in the Saudi Achievement (SAAT/Tahsili) Exam.
2004-2006	Ranked among the top-performing students in Riyadh City for three consecutive years (9^{th}, 10^{th}, and 11^{th} grades).

ACADEMIC DEPARTMENT-LEVEL PARTICIPATION AND CONTRIBUTIONS

- Honored to serve my colleagues as department chair during COVID-19 pandemic (2020-2022).
- As department chair during KSU's 2022 academic shift from a two-semester to a three-semester system, I successfully navigated the complexities of restructuring schedules for both faculty and students, ensuring a seamless transition while maintaining steady academic progress.
- Academic Plan Committee at the Electrical Engineering Department (Sept. 2024).
- Organized ***Ministry of Energy Workshop*** for the College of Engineering (Jan. 2023) (Photos)
- Member of the founding team of ***ALSTOM Senior Design Project Lab*** at the Electrical Engineering Department (Sponsored by ALSTOM - Budget of SAR 600,000) (2021-2022) (Inauguration Photos).
- Member of the Accreditation Committee in the EE Dept for the **Saudi NCAAA** MS/PhD review visit (April 2021).
- Member of the Accreditation Committee in the EE Dept for the **American ABET** review visit (Nov. 2021).
- Harassment prevention training in classrooms at the University of Southern California (2 hours course, Dec 2019).
- Attending teaching assistants training course at the University of Southern California (6 hours course, Jan. 2017).
- Leading the Electrical Engineering project at King Saud University to record the laboratory experiments (2011-2012) for:
    - (i) EE205: Electric Circuit lab (Youtube Link, >114,000 views as of July 2024).
    - (ii) EE312: Fundamentals of Electronics lab (Youtube Link, >39,000 views as of July 2024).

COMMITTEES

- Member of the Standing Committee for the Organization of Fellowship and Health Diploma Programs, King Saud University (2024).
- Member of the Student Advisory Committee, Deanship of Admission and Registration Affairs, King Saud University (2024).
- Member of the Committee for Updating and Reviewing Policies for Exemption from English Language Courses in the Joint First Year, King Saud University (2024).
- Vice Chairman of the Committee for the Preparation and Update of the Strategic Plan of the Deanship of Admission and Registration Affairs, King Saud University (2024).
- Member of the Transformation Committee for the Implementation of the Two Semesters at King Saud University, Deanship of Admission and Registration (2023).
- Head of the Archiving and Data Revision Team for the Archives of Transferred Colleges to King Saud University, Deanship of Admission and Registration (2023).
- Member of the Team Preparing the Data for the Saudi National Ranking of Higher Education Institutions (SGR) for King Saud University (2023).
- Member of the Follow-up Team to the Requirements of the Internal Audit Unit of the Deanship of Admission and Registration Affairs, King Saud University (2023).
- Member of the E-Services Development Team of the Deanship of Graduate Studies on the Academic System (2023).
- Member of the Committee to Study the Measures for Calculating the Teaching Load for Thesis in Master's and Doctoral Programs (2023).
- Member of the Standing Committee for the Follow-up of Certificate Verification Applications Referred to King Saud University on the "JAMEAH" Platform of the Ministry of Education (2023).
- Member of the Committee for Setting the General Framework for Building Study Programs, King Saud University (2023).
- Member of the Standing Committee for the Allocation of Joint First-Year Students, King Saud University (2023).

TEACHING SKILLS

• Taught the following courses:

- o EE 496/497: Capstone Project (I/II) (2020-2024, King Saud University).
  - ***Best Capstone Project in the College of Engineering Award, 2024.***
  - ***Finalist, SAMI-AEC Award Competition for Best Capstone Projects in College of Engineering and College of Computer and Information Sciences, 2022.***
  - ***Previous capstone projects were nominated by KSU for live demonstrations at KSU booth at "Global AI Summit 2022", and "World Defense Show 2024".***
- o EE 301: Signals and Systems (2nd semester, 2020, King Saud University).
- o EE 320: Communications Principles (2020-2021, King Saud University).
- o EE 201: Fundamentals of Electric Circuits (1st semester 2021, King Saud University).

• Teaching Assistant for:

- o EE301: Linear Systems (Spring 2017, University of Southern California),
- o EE311: Basics of Electronic Devices (2nd semester, 2011, King Saud University).
- o EE401: Digital Electronic circuits (1st semester, 2012, King Saud University).

• Grader for the following courses:

- o EE467: Introduction to Communication Systems (Spring 2014, Spring 2016, Spring 2017, Spring 2018, University of Southern California).
- o EE558: Optical Fiber Communication Systems (Spring 2017, Fall 2017, University of Southern California).
- o EE562: Random Processes in Engineering (Fall 2017, University of Southern California).
- o EE441: Applied Linear Algebra for Engineering (Fall 2016, University of Southern California).

SUPERVISING GRADUATE (MS/PHD) STUDENTS

- MSc; Abdulrahman Abulqader Alsalmi (Employer: Saudi Arabian Military Industries (SAMI))
  Title: Range Performance Modeling for Uncooled Monocular Thermal Imagers (Honored Spring 2024).
  - o One conference paper was published by the student and presented in *International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD), Italy* (2023).
- PhD; Jameel Ali (Employer: Simula Research Laboratory, Norway)
  Title: Enabling Advanced Technologies for Future Optical Sensing Networks (PENDING).
  - o So far, the student has published a paper in *Optics Express* (Q1) and a paper in *Optics & Laser Technology* (Q1) and *IEEE Journal of Lightwave Technology* (Q2).

TECHNICAL, EXPERIMENTAL, AND LABORATORY SKILLS

- Optical and RF system characterization and measurement tools.
- Communication system performance evaluation.
- Optical and RF component operation.
- Optical systems modeling software.
- Analog/microwave performance characterization.
- Nonlinear optics.
- Optical signal generation and detection.
- Electronic circuits.

RESEARCH SKILLS

- Proficient in writing formal research proposals and white papers for government organizations (NSF, DSCA, DARPA, ONR), and actively participating and presenting in project kick-off and review meetings
- Collaborated and co-authored with worldwide renowned institutes and companies including Google, Fujitsu, Futurewei/Huawei, and Stanford Univ.
- Delivered >10 presentations in various academic conferences and project review meetings.
- Reviewer for: Advances in Optics and Photonics (AOP) [IF=14.69], Journal of Lightwave Technology [IF:4.1], Journal of Optical Communications and Networking [IF:3.9] Optics Express (OE) [IF=3.669], Optics Letters (OL) [IF=3.714], IEEE Access [IF=3.745], Optics & Laser Technology (Opt. Laser Technol.) [IF=3.223], Journal of the Optical Society of America B (JOSA B) [IF=2.284], Optics Communications (Opt. Comm.) [IF=2.125], and IEEE Journal of Quantum Electronics (IEEE JQE.) [IF=1.887].

LIST OF FUNDED RESEARCH PROJECTS

No	Funding Agency	Duration	Title	Status
1	Research, Development, and Innovation Authority (RDIA)	2025	Multi-Dimension Optical Fiber Sensing for NEOM-Like Smart Cities Applications	Pending
2	KSU-Institutional Funding	2023	Research Fund for Publishing Papers	Ended
3	KSU-Institutional Funding	2022-2023	Security Investigation of Sustainable Free Space Optical (FSO)-Based IoT Communications in Smart Cities Using Machine Learning	Ended
4	KACST	2020-2022	Developing an Experimental Testbed for Next-Generation Photonics-Enabled Sub-Terahertz Communications System	Ended
5	KACST	2020-2022	Hybrid Integrated Sensing System for Sensitive Surveillance Applications	Ended
6	NTT Jp	2019-2020	High-Speed Communications and Signal Processing by Exploiting the Spatial Modes in the Optical and THz Frequencies	Ended
7	Fujitsu Labs of America	2014-2016	Phase-Sensitive BPSK/QPSK Regeneration Using Brillouin Amplification	Ended
8	US Defense Security Cooperation Agency	2014-2015	Tunable Delays Using Chromatic Dispersion, Fiber Bragg Gratings, and Wave Mixing	Ended
9	NSF Center for Integrated Access Networks	2014-2015	Homodyne Detection for WDM and Pol-Mux Channels Using Wave Mixing	Ended
10	Google	2013-2014	Delay-Line Interferometer-Based OSNR Monitoring Using Microcontrollers	Ended

GRANTED U.S. PATENTS:

- Title: Phase-Sensitive Regeneration without a Phase-Locked Loop using Brillouin Amplification (U.S. Pat. Ser. No. 10,270,536), Co-Inventors: Ahmed Almaiman, Alan E . Willner, Yinwen Cao, Morteza Zivadi (Apr. 23, 2019) (Link).
- Title: Multiple Kerr-Frequency-Comb Generation Using Different Lines from a Remote Kerr Comb (U.S. Pat. Ser. No. 11,106,111), Co-Inventors: Peicheng Liao, Alan Willner, Ahmed Almaiman, Changjing Bao (Aug. 31, 2021) (Link).

RECENT PUBLICATIONS:

1. Amir Minoofar, Abdulrahman Alhaddad, Wing Ko, Hongkun Lian, Huibin Zhou, Ahmed Almaiman, Muralekrishnan Ramakrishnan, Narek Karapetyan, Zile Jiang, Murali Annavaram, Moshe Tur, Jonathan L Habif, Alan E Willner "Reconfigurable Optical Recognition of Independent Data Patterns in a QPSK Data Stream Using Nonlinear Wave Mixing and Time or Wavelength Multiplexing" Journal of Lightwave Technology, 2025.
2. Jameel Ali, Ahmed Almaiman, Esam M Almohimmah, Amr M Ragheb, Maged A Esmail, Haakon Bryhni, Saleh A Alshebeili, "A Method for Event Localization in Sagnac Loop Sensing System Using Sparse Signal Recovery" Journal of Lightwave Technology 43, 2025.
3. Amir Minoofar, Abdulrahman Alhaddad, Wing Ko, Narek Karapetyan, Ahmed Almaiman, Huibin Zhou, Muralekrishnan Ramakrishnan, Murali Annavaram, Moshe Tur, Jonathan L. Habif, and Alan E. Willner "Tunable optical matrix convolution of 20-Gbit/s QPSK 2-D data with a kernel using optical wave mixing" Optics Letters 49, 4899-4902, 2024
4. Abdulrahman Alhaddad, Amir Minoofar, Wing Ko, Narek Karapetyan, Muralekrishnan Ramakrishnan, Huibin Zhou, Yuxiang Duan, Zile Jiang, Xinzhou Su, Yingning Wang, Ruoyu Zeng, Hao Song, Ahmed Almaiman, Moshe Tur, Jonathan L. Habif, and Alan E. Willner "Tunable pattern recognition of optical QPSK data using optical correlation and direct detection" Optics Letters 49, 5079-5082, 2024.
5. Ahmed Almaiman, Khaled Moneer Alkahtani, Amr Ragheb, Esam Almohimmah, Nasser Aldaghri, Zhe Zhao, Hao Song, Saleh Alshebili, "Beam steering using delays generated from an optical OAM mode shifting recirculating loop" Optik 171772, 2024.

6. Jameel Ali, Ahmed Almaiman, Maged A. Esmail, Amr M. Ragheb, Esam M. Almohimmah, Haakon Bryhni, Saleh A. Alshebeili, "Dual-stage deep learning for sangac optical fiber sensing multi-event detection and localization" Optics & Laser Technology 179, 111295, 2024.
7. Jameel Ali, Ahmed Almaiman, Amr M Ragheb, Maged A Esmail, Esam M Almohimmah, Saleh A Alshebeili, "Multievent localization for loop-based Sagnac sensing system using machine learning," Optics Express 31, 2023.
8. Esam M. Almohimmah, Omar Aldayel, Jameel Ali, Amr M. Ragheb, Ahmed Almaiman, Maged A. Esmail, and Saleh A. Alshebeili "Performance investigation of an ambiguity function-shaped waveform (AFSW) using a photonics-based radar system" Optics Express 31, 3784-3803, 2023.
9. Amr Ragheb, Masood M, Saif W, Iqbal N, Esmail MA, Almaiman AS, Fathallah H, Alshebeili S, Khan MZ. Deep Learning Assisted InAs/InP Quantum-dash Laser Structured Light Modes Detection Under Foggy Channel. Optics Communications. 130579, 2024.
10. Ahmed B. Ibrahim, Faisal J. Aljasser, Saud A. Alowais, Nasser Aldaghri, Amr M. Ragheb, Ahmed Almaiman, AND Saleh S. Alshebeili "Machine learning-based classification of structured light modes under turbulence and eavesdropping effects" Applied Optics 63, 4405, 2024.
11. Omar Aldayel, Esam M Amohimmah, Amr M Ragheb, Ahmed Almaiman, Saleh A Alshebeili "Joint Design of Autocorrelation and Spectral Characteristics of Radar Waveforms" IEEE Access 12, 2024.
12. Ahmed Almaiman, Yinwen Cao, Peicheng Liao, Alan Willner, and Moshe Tur, "Optically Delaying a Radio Frequency–Linear Frequency-Modulated (RF-LFM) Pulse Using Kerr Comb Carriers and Off-the-Shelf Concatenation of a Linearly Chirped Fiber Bragg Grating and a Chirped-and-Sampled Fiber Bragg Grating" Photonics 11, p 823, 2024.
13. MZM Khan, AM Ragheb, M Masood, W Saif, MA Esmail, N Iqbal, Q Tareq, AS Almaiman, H Fathallah, S Alshebeili, "L-band InAs/InP quantum dash laser spatial OAM light modes classification under smoke environment: An image processing enhanced deep learning approach" Optics & Laser Technology 168, 2024.
14. Abdulrahman B Abdelaziz, Mohammad A Rahimi, Muhammad R Alrabeiah, Ahmed B Ibrahim, Ahmed S Almaiman, Amr M Ragheb, Saleh A Alshebeili, "Photoplethysmography Data Reduction Using Truncated Singular Value Decomposition and Internet of Things Computing", Electronics, 12, p 220, 2023.
15. Elleathy A, Alhumaidan F, Alqahtani M, Almaiman AS, Ragheb AM, Ibrahim AB, Ali J, Esmail MA, Alshebeili SA. Strain FBG-Based Sensor for Detecting Fence Intruders Using Machine Learning and Adaptive Thresholding. Sensors 23, 5015, 2023.
16. Hao Song, Kaiheng Zou, Huibin Zhou, Narek Karapetyan, Amir Minoofar, Xinzhou Su, Ahmed Almaiman, Jonathan L Habif, Moshe Tur, Alan E Willner "Experimental demonstration of an optics-based 4-PSK half-adder using nonlinear wave mixing," Optics Letters 48, 2023.
17. Ahmed B Ibrahim, Amr M Ragheb, Ahmed S Almaiman, Abderrahmen Trichili, Waddah S Saif, Saleh A Alshebeili "Deep Learning-Based Image Denoising Approach for the Identification of Structured Light Modes in Dusty Weather" IEEE Photonics Journal, 2023.
18. Ziyad N Alotaibi, Saeed A Khouli, Ahmed B Ibrahim, Muhammad Alrabeiah, Amr M Ragheb, Ahmed S Almaiman, Saleh A Alshebeili "Sky Imager Data Reduction Using Autoencoder and Internet of Things Computing" IEEE Access, 111232, 2022.
19. Alan E Willner, Xinzhou Su, Huibin Zhou, Amir Minoofar, Zhe Zhao, Runzhou Zhang, Moshe Tur, Andreas F Molisch, Doohwan Lee, Ahmed Almaiman, "High capacity terahertz communication systems based on multiple orbital-angular-momentum beams" Journal of Optics, 124002, 2022.
20. Amir Minoofar, Narek Karapetyan, Ahmed Almaiman, Huibin Zhou, Hao Song, Kaiheng Zou, Wing Ko, Muralekrishnan Ramakrishnan, Murali Annavaram, Jonathan L Habif, Moshe Tur, Alan E Willner "Demonstration of optically-assisted reconfigurable average of two 20-Gbaud 4-phase-encoded data channels using nonlinear wave mixing" Optics Letters 48, 4617-4620, 2023.
21. Esam M Almohimmah, Amr M Ragheb, Ahmed S Almaiman, Omar S Aldayel, Saleh A Alshebeili, "Enabling Block-Sparse Recovery in Photonics-Based Radars With Multi-Waveform Transmission" Journal of Lightwave Technology 42, 10342858, 2023.

For more publications, Please refer to Google Scholar at:

https://scholar.google.com/citations?user=2XuCE7oAAAAJ&hl=en