Khan Muhammad, Ph.D., Senior Member IEEE

Assistant Professor (Tenure-Track)

Director, Visual Analytics for Knowledge Laboratory (VIS2KNOW Lab), Department of Applied Artificial Intelligence, School of Convergence, College of Computing and Informatics, Sungkyunkwan University, Seoul, Republic of Korea

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Research Gate: <u>https://www.researchgate.net/profile/Khan_Muhammad7</u>

Google Scholar: <u>https://scholar.google.com/citations?hl=en&user=k5oUZyQAAAAJ</u>

Web of Science (HCR 2021): <u>https://www.webofscience.com/wos/author/record/133398</u> Scopus: <u>https://www.scopus.com/authid/detail.uri?authorId=56651946700</u>

PROFILE

- Highly Cited Researcher 2021 and 2022 from Web of Science (Clarivate)
- Nobel Candidate Special Award Holder, 2022
- Over 12000 citations and an h-index 59.
- Developed courses curriculum and taught seven different undergraduate and graduate courses. (See Section 3)
- Significant experience of writing funded grant proposals. (See Section 4)
- Experience of supervising undergraduate and graduate students. (See Section 4)
- Professional reviewer (920+ reviews), guest editor (10+) of various journals and Associate Editor/Editorial Board Member of 18 journals. (See Section 6)
- Inventor of 10 patents, co-author of over 200 journal articles, 06 conference papers, book chapters, and book editor of several reputed publishers. (See Section 7)
- Research Group Leader of Intelligent Media Laboratory, Sejong University, South Korea
- Director, Visual Analytics for Knowledge Laboratory (VIS2KNOW Lab), Sungkyunkwan University, Korea
- IEEE IES Technical Committee Member on Industrial Informatics
- Professorship at age 26 (Birthday 10th April 1992)

1. EMPLOYMENT HISTORY/PROFESSIONAL EXPERIENCE

| • | Assistant Professor (Tenure Track) | March 2022-Onward |
|---|--|---------------------|
| | College of Computing and Informatics, Sungkyunkwan University | |
| • | Assistant Professor (Non-Tenure Track) | March 2019-Feb 2022 |
| | Department of Software, Sejong University | |
| • | Director | March 2019-Present |
| | Visual Analytics for Knowledge Laboratory (VIS2KNOW Lab), Sejong | University |
| • | Lead Researcher | March 2019-Present |
| | Intelligent Media Laboratory, Sejong University | |
| • | Lab Coordinator | September 2018-2019 |
| | Intelligent Media Laboratory, Sejong University | |
| • | Research Associate | September 2017-2018 |
| | Sejong University | |
| | Department of Digital Contents, Funded by PhD. Scholarship | |
| • | Research Assistant | March 2015-2016 |

Department of Digital Contents, Sejong University, Seoul, South Korea

Research Assistant ٠ Department of Computer Science, Islamia College Peshawar, Pakistan

2. EDUCATION

- MS Leading to PhD in Digital Contents Sejong University, Seoul, South Korea **Thesis:** Intelligent Fire Scene Analysis using Efficient Convolutional Neural Networks
- **BS in Computer Science** Islamia College Peshawar, Pakistan Thesis: Data Hiding in Images and Videos using Stenographic Techniques

3. TEACHING EXPERIECNE

Course(s) Developed

Emerging Multimedia Applications Advanced Computer Vision Computer Vision and Applications

Advanced Computer Vision

Developed/developing lectures, lab, and research-oriented materials for in-depth understating of advanced concepts and tools of computer vision in different multimedia applications.

Cultural Contents and Computer Vision

Developed this new course for undergraduate students of diverse majors/fields, prepared lectures, and lab materials for understating of necessary concepts and tools needed for their majors.

Topics on Multimedia Applications

Developed lectures, lab, and research-oriented materials for in-depth understating of advanced concepts and tools for multimedia applications.

Probability Statistics and Programming

Developing advanced lectures and course slides for senior students who studied "Introduction to Statistics" to further extend this field and apply statistical tools/methods to their areas of interest.

Pattern Recognition

Developed lectures, lab, and research-oriented materials for in depth understating of basic concepts and tools of pattern recognition and its application domains.

Discrete Mathematics and Programming

Developed lectures and lab material for in-depth understating of basic concepts and tools of discrete mathematics and computer programming.

Introduction to Statistics

Developed lectures and course slides for freshman to introduce them with basics concepts of Statistics and helping them to have hands on expertise in this subject.

Institutional Services

- Assistant Professor, Sejong University, Seoul, South Korea (March 2019-Feb 2022), SKKU (3.2022-till date)
- Member of Centre of Teaching and Learning (CTL) Committee, Sejong University (March 2019 Feb 2022)
- Member of Students Counselling Centre, Sejong University (March 2019 Feb 2022)

Fall 2021

Fall 2022

Spring 2022

Spring 2021

Fall 2020

Spring 2020

Spring and Fall 2019

March 2015-Feb 2019

September 2010-2014

September 2010-2014

To open for Fall 2023

To open for Spring 2023

To open for Spring 2023

- Member of Research Development and Innovation Task Force, Sejong University (March 2019 Till date)
- Member of International Collaboration Commission, SJU (5.2019 –2.2022) and SKKU (3.2022-till date)
- Member of Motivational Speakers Team, Sejong University (1.2019 –2.2022) and SKKU (3.2022-till date)

4. RESEARCH EXPERIENCE

Funded Grants

I am/was actively involved in writing the following funded grants proposals and their development under different roles:

| Funding Agency | Type of the Program | Grant Number | Project Title | Starting Date | Ending Date | Amount | Approx. Amount (RMB) | Project Status | Position |
|---|---|---------------------------------|--|------------------|----------------|--------------------------------------|----------------------------|---------------------------------------|---|
| Sungkyunkw an University | Research and Development (R&D) | 237735 | Settlement at SKKU | 02/2022 | 02/2024 | 60 million Korean Won (KWN) | 306012 | Ongoing | Principle Investigator |
| Ministry of Education, Kingdom of Saudi Arabia | R & D | Research No: 0254- 1443-S | Intelligent Surveillance System for Adverse Weather Conditions | 08/2022 | 05/2023 | 22518 USD | 163513 | Ongoing | Principle Investigator |
| Ministry of Education, Kingdom of Saudi Arabia | R & D | RP-21-07- 02 | Precision Surveillance | 07/2022 | 06/2023 | 200000 Saudi Riyal (SAR) | 385743 | Ongoing | Principle Investigator |
| Pakistan Science Foundation | Natural Sciences Linkage Program (NSLP) | PSF/ NSLP/KP- ICP (828) | Smart Neck Collar for Livestock | 05/2021 | 05/23 | 4.9 million (Pakistani Rupees) | 160615 | Ongoing | Internationa l Collaborato r |
| Ministry of Education, Kingdom of Saudi Arabia | R & D | Project Number 959 | Usage of Modern technologies to predict emergence of infectious diseases and to detect outbreak of pandemics | 02/2021 | 10/2021 | 24000 SAR | 46419 | Done (To be started again soon) | Internationa 1 Researcher |
| Korea Institute for Advancement of Technology | R&D | 2019-0- 00136 | Development of AI- Convergence Technologies for Smart City Industry Productivity Innovation | 04/2019 | 12/2021 | 220,000,00 0 (KWN) | 1123260 | Completed | Lead Researcher |
| Korea Institute for Advancement of Technology | R&D | 2019-0- 00795 | Development of integrated cross-model data processing platform supporting a unified analysis of various big data models | 04/2020 | 12/2021 | 100,000,00 0 (KWN) | 510572 | Completed | Lead Researcher |
| Korea Research Foundation supported project | R&D | 2019M3F2 A1073179 | Development of ensemble methods based XAI energy platform for effective energy consumption pattern and factor analysis | 06/2019 | 12/2021 | 520,000,00 0 (KWN | 2655090 | Completed | Lead Researcher |
| University of Bradford | University funding – Pilot research to cope COVID-19 Pandemic | Not Available | Optimization of Physical Spaces Design to Minimize the COVID- 19 Pandemic Transmission | 02/2020 | 01/2021 | 10,000£ | 84227 | Completed | Participatin g Researcher |
| Sejong University Research Foundation | R&D | 2019- 615430 | Intelligent Fire Detection for Surveillance | 03/2019 | 02/2020 | 5,000,000 (KWN) | 25508 | Completed | Principal Investigator and Lead Researcher |
| SEOHO Electric Private | Industrial Project | Not Available | Container Crane Automated System (CCAS): Deep Learning-Assisted End- | 04/2017 | 03/2019 | 10,000,000 (KWN) | 51062 | Completed | Leader of Key Module (Coastal |

| Limited, Korea | | | to-End Robust and Real- time Container Corner Casting Recognition | | | | | | Crane Casting Recognition) |
|---|-----|----------------------|--|---------|---------|-----------------------|---------|-----------|--------------------------------------|
| Korea Institute for Advancement of Technology | R&D | 2015-0- 00938 | National Program of Excellence in Software | 10/2015 | 02/2019 | Not Available | | Completed | Student Researcher |
| Korea Institute for Advancement of Technology | R&D | R0126-15- 1119 | Development of a Solution for Situation- awareness based on the Analysis of Speech and Environmental Sounds | 01/2017 | 03/2018 | 288,000,00 0 (KWN) | 1470195 | Completed | Student Researcher |
| Korea Institute for Advancement of Technology | R&D | 2017-0- 00506 | Building improved classifier on imbalanced financial/business transaction data to predict company bankruptcy | 04/2017 | 03/2018 | 460,000,00 0 (KWN) | 2348160 | Completed | Student Researcher |
| Sejong University Research Foundation | R&D | 2016- 615387 | Leukocytes classification and segmentation in microscopic blood smear: a resource-aware healthcare service in smart cities | 09/2016 | 08/2017 | 5,000,000 (KWN) | 25508 | Completed | Student Researcher |
| Korea Institute for Advancement of Technology | R&D | R0601-16- 1039 | Building an Infrastructure of a Large-Scale Data Appliance Development Testing Center | 05/2016 | 02/2017 | 58,000,000 (KWN) | 296103 | Completed | Student Researcher |
| Korea Research Foundation supported project | R&D | 2013R1A1 A2012904 | Personalized Video Contents Summarization Technology | 03/2015 | 05/2016 | 50,000,000 (KWN) | 255383 | Completed | Student Researcher |

Notes:

The project with ID: 2013R1A1A2012904 in last row started in 2013 but my participation starts from 2015.

Only those details are provided that are available to me.

Summary of Projects/Funds

| Projects as PI | | Projects Resea | as Lead archer | Proje Student/Pa Resea | ects as articipating archer | Total |
|-----------------|--------|-------------------|-------------------|------------------------------|-----------------------------------|---------|
| Count 4 | | Count | 5 | Count | 8 | 17 |
| Amount (RMB) | 880776 | Amount (RMB) | 4500599 | Amount (RMB) | 4525995 | 9907370 |

Note: The amounts are for projects whose details are available to me.

Supervision Experience

I am/was energetically supervising graduate and undergraduate students in both industry and academia research projects:

- Co-supervised Dr. <u>Amin Ullah</u> Ph.D. at Sejong University (See publications [JJ7, JJ29, JJ40, and NIFJ3]) (March 2017- February 2021). [Currently a <u>Post Doc</u> since June 2021 at CoRIS Institute, Oregon State University, Corvallis, OR, USA]
- Co-supervised Dr. <u>Ijaz Ul Haq</u> at Sejong University (See publications [JJ16, J22, J26, and C2]) (September 2017-Feb 2022). [Currently doing Post Doc at Oakland University, USA]
- Co-supervised <u>Salman Khan</u> Master student at Sejong University (See publications [JJ32]) (March 2018- March 2020). [Currently PhD Fellow at Oxford Brookes University, UK]

- Remotely co-supervised Dr. Zafar Ali at Southeast University, Nanjing, China (September 2017- 2020) [Currently post doc at the same university].
- Co-supervised Dr. <u>Tanveer Hussain</u> at Sejong University (See publications [JJ15, JJ19, and NIFJ1]) (March 2018-Aug 2022). [Currently a Post doc fellow at University of Leeds, UK]
- Co-supervising Fath U Min Ullah Ph.D. student at Sejong University (See publications [JJ25]) (September 2018-to date). [expected graduation in Feb 2023]
- Co-supervised more than five undergraduates, Master, and Ph.D. students (Siraj Khan, Mansoor Nasir etc.) at Digital Image Processing Laboratory at Islamia College University, Peshawar, Pakistan (See publications [JJ63, JJ35, JJ36, JJ54, and C3]).
- Collaborated with Mr. Nasir Rahim (now PhD student under my co-supervision at SKKU, Korea), Mr. Abdul Malik Badshah (now Research Developer at Anarchy), Mr. Noor Ullah, and Dr. Jamil Ahmad with their Master and Ph.D. thesis and published various conference and journal papers at Sejong/SKKU University. (See publications [JJ39, JJ43, JJ46, JJ47, JJ53, JJ55, JJ59, JJ60, JJ35, JJ36, JJ54, NIFJ2, and C3])
- Collaborated with Dr. <u>Hamza Rafik</u> (now Associate Professor at Tokyo International University, Japan) and under my partial supervision, we jointly published several journal papers. (See publications [JJ30, JJ33, JJ57, and JJ61])
- Co-supervised <u>Hayat Ullah</u> Master student at Sejong University (March 2018- March 2020). [Got 100% scholarship at Kansas State University, Manhattan, USA and is currently a PhD Fellow, Remote supervision continues]
- Co-supervised <u>Muhammad Irfan</u> Master student at Sejong University (March 2018- March 2020). [Got 100% scholarship at Oakland University, USA, and currently doing PhD there with my remote supervision]
- Co-Supervised Abbas Khan, Master Student at Sejong University (Sept 2020 to Aug 2022). [Currently PhD Fellow at Mohamed bin Zayed University of Artificial Intelligence (MBZUAI), UAE].
- Co-supervising <u>Waseem Ullah</u> Ph.D. student at Sejong University (September 2019- to date).
- Co-supervising Zulfiqar Ahmad Khan Master leading to Ph.D. student at Sejong University (September 2019- to date).
- Supervising other Master, PhD and Postdocs at different stages, details can be provided (if needed).

5. PROFESIONAL DEVELOPMENT

- Invited talk on the topic "Intelligent Fire Scene Analysis using Efficient Convolutional Neural Networks" at the 6th EAI International Conference on Advanced Hybrid Information Processing (ADHIP), Sept 2022, China.
- Invited talk on the topic "Intelligent Video Summary Generation: Current Challenges and Future Directions" at Sungkyunkwan University (SKKU), Seoul, November 2021.
- Invited Speaker for topic "Recent Developments in Fire Scene Analysis" at NTNU, Norway, Oct 2021.
- Invited Speaker for topic "Future of E-Health and Telemedicine" under the program "<u>MARIE CURIE COFUND</u> <u>PROGRAMME</u>.",21st April 2021.
- Invited Speech on "Intelligent Video Summary Generation: Current Challenges and Future Directions" at 2020 International Conference on Intelligent Data Science Technologies and Applications (IDSTA), Valencia, Spain.
- Invited Speech on "Intelligent Video Summary Generation: Current Challenges and Future Directions" at **The Fourth International Conference on Multimedia Computing, Networking and Applications (MCNA2020),** Valencia, Spain.
- Invited <u>Speaker</u> at the **4th EAI International Conference on Advanced Hybrid Information Processing** (**ADHIP**), Sept 2020, China.

- Motivational Speech on "Important Tips for Becoming a Professor Under the Age 30", Sejong University, November 2019.
- Workshop on Fire Scene Analysis using Neural Networks at ICNGC, Thailand, December 20, 2019
- Workshop on Intelligent Video Summary Generation at Islamia College Peshawar, Pakistan, September 2017
- Workshop on ICTs for Development: Mainstreaming the Marginalized, January 12-13, 2016.

6. Professional Activities and Research

International Collaboration

- Director of Visual Analytics for Knowledge Laboratory (VIS2KNOW Lab), SKKU, Seoul.
- Coordinator of International Students in Intelligent Media Laboratory, Sejong University, Seoul, Republic of Korea.
- Partially supervising BS/MS/PhD students at Digital Image Processing Lab, Islamia College Peshawar, Pakistan, Southeast University, Nanjing, China, Federal University of Ceará, Brazil, University of Kashmir, India, Sheffield University, and University of Bradford, UK.
- In collaboration with more than 30 active research teams on various topics for joint research around the globe from Pakistan, China, Singapore, UK, USA, Spain, Italy, Finland, Algeria, Brazil, Korea, Japan, Columbia, Australia, Canada, India, Saudi Arabia, and Egypt etc.

Reviewer of 120+ journals with 920+ reviews

For full reviewer's history, visit me at <u>Web of Science</u> (login access mandatory to see all details, not in free version, not maintained well after "Publons" merging with the Web of Science, selected journals are listed below)

- Journal, reviewer since year (number of reviews done)
- IEEE Internet of Things (IoT) since 2017 (77)
- IEEE Transactions on Industrial Informatics since 2017 (75)
- IEEE Access since 2017 (52)
- IEEE Network Magazine since 2018 (30)
- IEEE Wireless Communications Magazine since 2018 (20)
- IEEE Communications Magazine since 2017 (10)
- IEEE Computational Intelligence Magazine since 2019 (5)
- IEEE Transactions on Neural Networks and Learning Systems since 2020 (6)
- IEEE Transactions on Image Processing since 2015 (7)
- IEEE Transactions on Fuzzy Systems since 2019 (4)
- IEEE Transactions on Intelligent Transportation Systems since 2020 (26)
- IEEE Transactions on Big Data since 2019 (2)
- IEEE Transactions on SMC-Systems since 2019 (3)
- IEEE Transactions on CSVT since 2019 (2)
- IEEE Transactions on Wireless Communications since 2020 (2)
- IEEE Transactions on Network Science and Engineering (10)
- IEEE Consumer Electronics Magazine since 2018 (5)
- IEEE Transactions on Vehicular Technology since 2018 (10)
- IEEE Transactions on Green Communications and Networking (8)
- IEEE Transactions on Cognitive Communications and Networking (6)
- IEEE Journal of Biomedical and Health Informatics (8)

- IEEE Sensors Journal (6)
- IEEE Systems Journal (6)
- IEEE Internet of Things Magazine (2)
- ACM Transactions on MCC and Applications since 2017 (11)
- ACM Computing Surveys since 2020 (2)
- ACM Transactions on Internet Technology since 2020 (2)
- ACM Transactions on Asian and Low-Resource Language Information Processing since 2020 (3)
- Elsevier Future Generation Computer Systems since 2016 (43)
- Elsevier Information Fusion (9)
- Elsevier International Journal of Information Management since 2018 (3)
- Elsevier Signal Processing since 2016 (3)
- Elsevier Expert Systems with Applications (19)
- Elsevier Ad hoc Networks since 2018 (6)
- Elsevier Neurocomputing since 2018 (27)
- Elsevier Information Sciences (11)
- Elsevier Applied Soft Computing (9)
- Elsevier Journal of Network and Computer Applications since 2017 (16)
- Elsevier Signal Processing: Image Communication since 2017 (2)
- Elsevier Computer Communications since 2017 (16)
- Elsevier Computer Networks since 2018 (8)
- Elsevier Optics and Lasers in Engineering since 2018 (3)
- Elsevier Optik International Journal for Light and Electron Optics since 2018 (1)
- Elsevier Computer Methods and Programs in Biomedicine since 2018 (5)
- Elsevier Journal of Parallel and Distributed Computing since 2017 (3)
- Elsevier Journal of Computational Science since 2017 (5)
- Elsevier Computers and Electrical Engineering since 2017 (15)
- Elsevier Digital Communications and Networks since 2017 (8)
- Elsevier Journal of King Saud University Computer and Information Sciences since 2018 (12)
- Springer Mobile Networks and Applications since 2017 (5)
- Springer Multimedia Tools and Applications since 2015 (80)
- Springer Signal, Image and Video Processing since 2018 (4)
- Springer Journal of Super Computing since 2016 (14)
- Springer Medical & Biological Engineering & Computing since 2016 (6)
- Springer Cluster Computing since 2017 (8)
- Springer Nonlinear Dynamics since 2016 (2)
- Springer Neural Computing and Applications since 2018 (8)
- Springer EURASIP Journal on Image and Video Processing since 2018 (4)
- Springer Journal of Ambient Intelligence and Humanized Computing since 2017 (13)
- Springer Plus Journal since 2016 (1)
- Journal of Medical Imaging and Health Informatics since 2018 (1)
- KSII Transactions on Internet and Information Systems since 2018 (1)
- SAGE International Journal of Distributed Sensor Networks since 2017 (2)

- Hindawi Computational Intelligence and Neuroscience since 2017 (8)
- Taylor & Francis Journal of Experimental and Theoretical Artificial Intelligence since 2015 (3)
- IGI International Journal of E-Health and Medical Communications since 2018 (3)
- Computer Science and Information Systems since 2017 (2)
- International Journal of Business Intelligence and Data Mining since 2017 (1)
- NED University Journal of Research since 2016 (2)
- EAI Endorsed Transactions on Security and Privacy since 2017 (1)
- Jordanian Journal of Computers and Information Technology since 2017 (2)
- IEEE International Conference on Multimedia and Expo (ICME) 2020 (2)
- IEEE SMC 2019 (1), Bari, Italy
- IEEE INDIN 2019, Finland (1)
- ACCSE 2018, Barcelona, Spain (1)
- IEEE INDIN 2018, Portugal (1)
- AINA 2017 (6)
- ICNC 2017 (5)
- ICCCT 2015 (1)

Conference Co-Chair/Committee/Member

- IEEE International Conference on Machine Learning and Applications, December 2022 (Publicity Chair)
- IEEE ISIE 2022, 2023 (Track chair of AI/Machine Learning & Its Applications)
- IEEE INDIN 2021, 2022 and 2023 (Track Chair of Artificial intelligence in industrial applications)
- IWW 2020, 2021, Triesta, Italy, (PC member)
- ATC 2020, Melbourne, Australia (Publicity Chairs)
- ICCS-2020, Amsterdam, The Netherlands (PC member)
- NCAA-2020, Shenzhen, China (PC member)
- ICoIAS-2020, Singapore (Session chair: Artificial intelligence and signal processing)
- IMC-2020, Bali, Indonesia (Member)
- Task force member: Granular Data Mining for Big Data
- ICNGC-2019, Chiang Mai, Thailand
- IEEE CEC 2019, Wellington, New Zealand
- INDIN 2019, Helsinki-Espoo, Finland
- PlatCon-19, Jeju, Republic of Korea
- ICNGC-2018, Vung Tau City, Vietnam
- PlatCon-18, Jeju, Republic of Korea
- ICNGC-2017b, Kaohsiung, Taiwan
- KingPC-17, Jeju, Republic of Korea
- IDICID-17, Kaohsiung, Taiwan
- PlatCon-17, Busan, Republic of Korea
- ICNGC2017, Ho Chi Minh, Vietnam
- IEEE AINA 2017, Taipei, Taiwan
- FIT 2016, Islamabad, Pakistan
- PlatCon-16, Jeju, Republic of Korea

• MITA 2015, Tashkent, Uzbekistan

Editor/Guest Editor/Editorial Board Member on Journals/Book Series

- Associate Editor, Information Fusion Journal (Aug 2022-present) [IF: 17.564, Q1 rank, top 1%]
- Associate Editor, <u>Alexandria Engineering Journal</u> (Dec 2021-present) [IF:6.626, Q1 rank, top 10%]
- Advisory Board Member, Journal of the Chinese Institute of Engineers (Dec 2021-present) [IF: 1.107]
- Editorial Board Member, MDPI Fire Journal (IF: 2.726, Q2)
- Editorial Board Member, <u>MDPI Mathematics Journal</u> (IF: 2.592, Q1, top 7%)
- Editorial Board Member, Journal of the Chinese Institute of Engineers (IF: 1.107)
- Associate Editor, International Journal of Hybrid Intelligence (May 2021-present)
- Associate Editor, <u>Frontiers in Sensors</u> (March 2021-present)
- Associate Editor, Frontiers in Artificial Intelligence (October 2021-present)
- Associate Editor, Computer Informatization and Mechanical System (January 2021-present)
- Associate Editor, <u>J Multidisciplinary Scientific Journal</u> (March 2021-present)
- Associate Editor, International Journal of Smart Sensor Technologies and Applications (December 2020-present)
- Editorial board member, Journal of Artificial Intelligence and Systems (May 2019-present)
- Editorial Board Member, Internet of Things and Cyber-Physical Systems (October 2020-present)
- Editorial Board Member, <u>International Journal of Intelligent Networks</u> (December 2020-present)
- Editorial Board Member, International Journal of Cognitive Computing in Engineering (December 2020-present)
- Associate Editor, <u>Scientific Journal of Electrical, Computer, and Informatics Engineering</u> (December 2020present)
- Editorial Board Member, Knowledge Journal (May 2021-present)
- Editorial Board Member, Virtual Reality & Intelligent Hardware (June 2021-present)
- Book Series Editor, Intelligent Data-Driven Technology for Sustainability (April 2021-present)
- Review Editor, Mathematics of Computation and Data Science
- Guest Editor, Special section on "Dynamic Diseases: Mathematical Informed Expert and Knowledge Computing <u>Technology-based Computational Medicine in Complex Systems</u>" in IMR Press, Frontiers in Bioscience-Landmark Journal, 2022-2023.
- Guest Editor, Special section on "<u>Data-Driven Processing from Complex Systems Perspective</u>" in MDPI Electronics Journal, 2021-2022.Guest Editor, Special section on "<u>Deep Neural Networks with Cloud Computing</u>" in Elsevier Neurocomputing Journal, 2020-2021.
- Guest Editor, Special section on "<u>AI-Enabled Advanced Sensing for Human Action and Activity Recognition</u>" in MDPI Sensors Journal, 2021-2022.
- Guest Editor, Special section on "Secure Applications with Blockchain and Artificial Intelligence" in MDPI Entropy Journal, 2021-2022.
- Guest Editor, Special section on "Intelligent Hybrid Information System and its Application in Mobile World" in Springer Mobile Networks and Applications Journal, 2021-2022.
- Guest Editor, Special section on "<u>Fractal AI-Based Analyses and Applications to Complex Systems</u>" in Fractals Complex Geometry, Patterns, and Scaling in Nature and Society, 2020-2021. [For initial few parts]
- Guest Editor, Special issue on "<u>Advanced Deep Learning Methods for Biomedical Image Analysis</u>" in Elsevier Neural Networks, 2019-2020
- Guest Editor, Special issue on "<u>Convergence of Deep Machine Learning and Parallel Computing Environment for</u> <u>Bio-Engineering Applications</u>" in Wily Concurrency and Computation: Practice and Experience, 2018-2019

- Lead Guest Editor, Special issue on "Advances in Image and Video Processing", in NED University Journal of Research: An International Journal, 2017-2018
- Guest Editor, Special issue on "Recent Advances in Multimedia Watermarking for Multimedia Digital Rights Management" in Journal of Information Privacy and Security, 2017-2018

Edited Books

- Editor, Applications of Blockchain Technology and Artificial Intelligence: Lead-ins in Banking, Finance, and Capital Market, in process with Springer Publisher. (Proof can be provided on request)
- Editor, Fractal Based Image Analysis in Application to Pattern Recognition and Machine Vision, in process with Elsevier Publisher. (Proof can be provided on request)
- Editor, Computer Intelligence against Pandemics Tools, and Methods to face new Strains of Covid-19, in process with De Gruyter Publisher. (Proof can be provided on request)
- Editor, <u>Computational Intelligence in Cancer Diagnosis: Progress and Challenges</u>, Published with by Elsevier, 2022.
- Editor, Multimedia Security: Algorithm Development, Analysis and Applications, Published with Springer, 2021

7. PUBLICATIONS

*Papers/conference lists not updated after May 2020. Visit my google scholar/Scopus for papers' details (given on first page)

| rst Author (F. | A) Co | | | | | | | | | | | | | |
|-------------------------------------|--------------------------|-----------------------------------|--|--|---|---|---|---|---|--|---|--|---|---|
| | nor (FA) Corresponding A | | Author (CA) FA+CA Co-authored Conferences | | encesN | esNon-SCI research | | Edited Books | | Book Chapters | | | | |
| 17 | | 78 | | | 17 | 97 | 10 |) | 10 | | 5 | | | 5 |
| Summary of SCIE/SSCI indexed papers | | | | | | | | | | | | | | |
| FA | | | | | A | Both FA | and CA | | Co-Aut | thored | | | Tota | l |
| Number of Papers 17 | | | | - 78 | 8 | 1 | 17 97 | | | | 209 | | | |
| Impact Factor 78.516 | | | | 498. | 296 | 163. | 625 | | 482. | 294 | | | 1222.7 | '31 |
| Q1 | Q2 | Q3 & Q4 | Q1 | Q2 | Q3 & Q4 | Q1 | Q2 | Q1 | Q2 | Q3 (| & Q4 | Q1 | Q2 | Q3 & Q4 |
| 8 | 8 | 1 | 52 | 25 | 1 | 15 | 2 | 60 | 32 | | 4 | 135 | 67 | 6 |
| | 17 5 Q1 8 | 17 5 1 78.5 Q1 Q2 8 8 | I7 78 FA 17 5 17 78.516 01 Q1 Q2 Q3 & Q4 8 8 1 | 17 78 FA Summedia 5 17 78.516 78.516 Q1 Q2 Q3 & Q4 Q1 8 8 1 52 | 17 78 Summary FA C, 5 17 78 78.516 498. Q1 Q2 Q3 & Q4 Q1 Q2 8 8 1 52 25 | 17 78 17 Summary of SCIE/S FA CA 5 17 78 78.516 498.296 Q1 Q2 Q3 & Q4 Q1 Q2 Q3 & Q4 8 8 1 52 25 1 | 17 78 17 97 Summary of SCIE/SSCI index FA CA Both FA 5 17 78 11 78.516 498.296 163. Q1 Q2 Q3 & Q4 Q1 Q2 Q3 & Q4 Q1 8 8 1 52 25 1 15 | 17 78 17 97 10 Summary of SCIE/SSCI indexed pap FA CA Both FA and CA 6 17 78 17 78.516 498.296 163.625 Q1 Q2 Q3 & Q4 Q1 Q2 Q3 & Q4 Q1 Q2 8 8 1 52 25 1 15 2 | 17 78 17 97 10 Summary of SCIE/SSCI indexed papers FA CA Both FA and CA 5 17 78 17 78.516 498.296 163.625 Q1 Q2 Q3 & Q4 Q1 Q2 Q3 & Q4 8 8 1 52 25 1 15 2 60 | 17 78 17 97 10 10 Summary of SCIE/SSCI indexed papers FA CA Both FA and CA Co-Aut 5 17 78 17 97 78.516 498.296 163.625 482. Q1 Q2 Q3 & Q4 Q1 Q2 Q1 Q2 8 8 1 52 25 1 15 2 60 32 | 17 78 17 97 10 10 Summary of SCIE/SSCI indexed papers FA CA Both FA and CA Co-Authored 5 17 78 17 97 78.516 498.296 163.625 482.294 Q1 Q2 Q3 & Q4 Q1 Q2 Q3 8 8 1 52 25 1 15 2 60 32 | 17 78 17 97 10 10 5 Summary of SCIE/SSCI indexed papers FA CA Both FA and CA Co-Authored 6 17 78 17 97 78.516 498.296 163.625 482.294 Q1 Q2 Q3 & Q4 Q1 Q2 Q1 Q2 Q3 & Q4 8 8 1 52 25 1 15 2 60 32 4 | 17 78 17 97 10 10 5 Summary of SCIE/SSCI indexed papers FA CA Both FA and CA Co-Authored 6 17 78 17 97 78.516 498.296 163.625 482.294 Q1 Q2 Q3 & Q4 Q1 Q2 Q3 & Q4 Q1 8 8 1 52 25 1 15 2 60 32 4 135 | 17 78 17 97 10 10 5 Summary of SCIE/SSCI indexed papers FA CA Both FA and CA Co-Authored Tota FA CA Both FA and CA Co-Authored Tota 5 17 78 78.516 498.296 163.625 482.294 1222.7 Q1 Q2 Q3 & Q4 Q1 Q2 Q1 Q2 Q3 & Q4 Q1 Q2 8 8 1 52 25 1 15 2 60 32 4 135 67 |

Table 1: Summary of research contributions [Till Sept 2022]

Patents [Latest till 29 Sept 2022]

Filed Patents

- 1. Sung Wook Baik, Seung Min Rho, Mi Young Lee, **Khan Muhammad**, Amin Ullah, Ijaz ul Haq, Energy consumption analysis method using smart meter data, KIPRIS, 2022. [Filed]
- 2. Amin Ullah, **Khan Muhammad**, and Sung Wook Baik, Apparatus and method for information sharing between vision sensors for intelligent scene understanding, KIPRIS, 2021. [Filed]
- 3. Sung Wook Baik, **Khan Muhammad**, Lee mi Young, Hussain Tanveer, Ijaz ul Haq, Scene segmentation apparatus using object detecting and set theory, and method thereof, KIPRIS, 2020. [Filed, Application No: 10-2020-0019677]

Registered Patents

- 4. Mrsic Leo, Jan Platos, Soumyadip Dhar, Jyoti Sekhar, Soham Bhandary, Aditya Das Sarma, Deepraj Chowdhury, Mohammad Hijji, Khan Muhammad, Sourav De et al. A cloud based distributed intelligent colorimeter system for predicting the purity of color of any object, Germany, July 2022. [Registered, Application number: 202022103464.8]
- 5. Tulika Dutta, Siddhartha Battacharyya, Jan Platos, Leo Mrsic, Sergey Gorbacheve, Maxim Bobyr, **Khan Muhammad**, Alexander Arkhipov, Nadezhda Gorbacheva, Shakeel Ahmed, Goran Klepack, Automated hyperspectral image

clustering using multilevel quantum differential evolution on quantum hardware, Australia, June 2021. [Registered, Application number: 2021102646]

- 6. Ijaz Ul Haq, Lee Mi-young, **Khan Muhammad**, Amin Ullah, and Sung Wook Baik, Method and system for abnormal situation monitoring based on video, KIPRIS, Oct 2020. [**Registered**, Registration No: 1021722390000]
- 7. Khan Muhammad, Tanveer Hussain, and Sung Wook Baik, Apparatus and method for analyzing baby behavior, KIPRIS, Aug 2020. [Registered, Registration No: 1021506230000]
- 8. Khan Muhammad, Amin Ullah, and Sung Wook Baik, Fire monitoring method and apparatus, KIPRIS (Korea Intellectual Property Rights Information Service), Dec 2019. [Registered, Registration No: 1020602420000]
- 9. Khan Muhammad, Jamil Ahmad, and Sung Wook Baik, Apparatus and method for speech emotion recognition using a reasoning process, KIPRIS, Oct 2019. [**Registered**, Registration No: 1020319540000]
- 10. Khan Muhammad, Amin Ullah and Sung Wook Baik, Image processing method and system for smoky environment, KIPRIS, Aug 2019. [Registered, Registration No: 1020162620000]
- Nam, Yun-Young, RHO, Seung-Min, Muhammad Sajjad, Irfan Mehmood, Tanveer Hussain, Jamil Ahmad, Khan Muhammad, Device and method for communication of the deaf person, KIPRIS, Aug 2019 [Registered, Registration No: 1020115950000]
- 12. Jamil Ahmad, **Khan Muhammad** and Sung Wook Baik, Method and apparatus for retrieving image using convolution neural network, KIPRIS, Nov, 2018. [**Registered**, Registration No: 1019173690000]

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- Khan Muhammad*, Amin Ullah, Jaime Lloret, Victor Hugo C. de Albuquerque, <u>Deep Learning for Safe Autonomous</u> <u>Driving: Current Challenges and Future Directions</u>, *IEEE Transactions on Intelligent Transportation Systems*, 2019 (Under Review [Second Round]). [IF: 5.744, Q1]
- Khan Muhammad*, Salman Khan, Javi Del Ser, Victor Hugo C. de Albuquerque, <u>Deep Learning for Multi-Grade</u> <u>Brain Tumor Classification in Smart Healthcare Systems: A Prospective Survey</u>, *IEEE Transactions on Neural Networks and Learning Systems*, 2019, (Under Review [Third Round]), [IF: 11.683, Q1]
- 3. Shabir Khan, **Khan Muhammad***, et al., <u>INDFORG: Industrial Forgery Detection using Automatic Rotation Angle</u> Detection and Correction, *IEEE Transactions on Industrial Informatics*, (Major Revision), [**IF:** 7.377, Q1]
- 4. Zafar Ali*, **Khan Muhammad***, Pavlos Kefalas, Bahadar Ali and Muhammad Imran, <u>Deep Learning in Citation</u> <u>Recommendation Models Survey</u>, Expert Systems With Applications, (In First Review), [**IF:** 4.292, Q1]
- 5. Basit, Mohammad Elhoseny, Noura, **Khan Muhammad***, <u>A Hybrid MCDM Methodology for Evaluating Commercial</u> <u>Banks Performance</u>, *Neural Computing and Applications*, (Major Revision), [**IF:** 4.664, Q1]
- 6. Tao Han*, **Khan Muhammad***, et al. <u>Emerging Drone Trends for Blockchain-Based 5G Networks: Open Issues and</u> <u>Future Perspectives</u>, *IEEE Network*, 2020 (Second round review). [**IF**: 7.503, Q1]
- 7. Zafar Ali*, Guilin Qi; **Khan Muhammad*;** Bahadar Ali; Waheed Ahmed Abro, <u>Paper Recommendation based on</u> <u>Heterogeneous Network Embedding</u>, Knowledge Based Systems, 2020, (Under first review round), [**IF:** 5.101, Q1]
- Mahmoud, Murad, Khan Muhammad*, Servin, <u>Vehicle Detection and Tracking in Adverse Weather Using a Deep</u> <u>Learning Framework</u>, *IEEE Transactions on Intelligent Transportation Systems*, 2019 (Under Review [Second Round]). [IF: 5.744, Q1]
- 9. Khan Muhammad*, Sambit, Joel, et al. <u>METO: Matching Theory Based Efficient Task Offloading in IoT-Fog</u> Interconnection Networks, *IEEE Internet of Things Journal*, 2019 (Major Revision). [IF: 9.515, Q1]
- 10. Khan Muhammad*, Tanveer Hussain, Neeraj Kumar, Mohammad Tanveer, Javier Del Ser, <u>Fuzzy Logic for</u> <u>Surveillance Big Video Data Analysis: A Comprehensive Review, Critical Analysis, Challenges and Research</u> <u>Directions, ACM Computing Surveys, (Submitted), [IF: 6.131, Q1]</u>
- 11. Khan Muhammad*, Salman Khan, Neeraj Kumar, et al., <u>Vision-Based Personalized Wireless Capsule Endoscopy for</u> <u>Smart Healthcare</u>, *Future Generation Computer Systems*, (Minor Revision), [**IF:** 5.768, Q1]

- 12. Solihah Gull, Shabir Parah, **Khan Muhammad***, <u>Reversible Data Hiding Exploiting Huffman Encoding with Dual</u> <u>Images for IoMT based Healthcare</u>, *Computer Communications*, (Major Revision), [**IF:** 2.766, Q2]
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- Waseem Ullah, Khan Muhammad*, Ijaz Ul Haq, Amin Ullah, Saeed Ullah Khattak, Muhammad Sajjad*, <u>Splicing Sites Prediction of Human Genome using Machine Learning Techniques</u>, Multimedia Tools and Applications, (Under review), [IF: 2.101, Q2]
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- Tao Han, Khan Muhammad, Tanveer Hussain, Jaime Lloret, Sung Wook Baik, <u>An Efficient Deep Learning Framework</u> <u>for Intelligent Energy Management in Dependable IoT</u>, *IEEE Internet of Things Journal*, 2019 (Major Revision). [IF: 9.515, Q1]
- Ana I. Torre-Bastida, Khan Muhammad*, David Camacho, Javier Del Ser*, <u>Bioinspired BigData Technologies for</u> <u>Data Fusion, Processing, Learning and Visualization: State of the Art and Future Directions</u>, Neural Computing and Applications, (Under review), [IF: 4.664, Q1]
- Javier Del Ser, Khan Muhammad, Jesus L Lobo, Sancho Salcedo-Sanz, Pedro Gutierrez, Claudio Gallicchio, P. N. Suganthan, Francisco Herrera, <u>Randomization-based Data Fusion and Machine Learning: Taxonomy, Techniques</u>, <u>Opportunities and Challenges</u>, Information Fusion, (Under review), [IF: 10.716, Q1]
- Christian Espositoa, Shui-Hua Wang, Chang Choi, Mohammad Tanveer, Khan Muhammad*, <u>Multimodal</u> <u>Neuroimaging Data Fusion with Game Theoretic Feature Selection and Dempster–Shafer Combination Rule in</u> <u>Adversarial Conditions</u>, Information Fusion, (Under review), [IF: 10.716, Q1]
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- Wei-Zhe Zhang, Ibrahim A. Elgendy, Mohamed Hammad, Abdullah M. Iliyasu, Irfan Mehmood, Neeraj Kumar, Khan Muhammad*, Ahmed A. Abd El-Latif, <u>A Novel Secure and Optimized Load Balancing Method for Green Industrial</u> IoT and Edge Computing Paradigms, *IEEE Transactions on Industrial Informatics*, (Under review), [IF: 7.377, Q1]
- 23. Hayat Khan, **Khan Muhammad***, Muhammad Sajjad, Ali Shariq, <u>Light-DehazeNet: A Novel Lightweight CNN</u> <u>Architecture for Single Image Dehazing</u>, IEEE Transactions on Image Processing, (Under review), [**IF:** 6.79, Q1]
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- Amin Ullah, Khan Muhammad, Ijaz Ul Haq, Sung Wook Baik, <u>Efficient Activity Recognition using Lightweight</u> <u>CNN and Deep GRU Network for Surveillance Applications</u>, *Applied Soft Computing*, 2020 (In Peer Review). [IF: 4.873, Q1]
- 30. Tanveer Hussain, **Khan Muhammad**, and Sung Wook Baik, <u>A Comprehensive Survey on Multi-View Video</u> <u>Summarization</u>, *Pattern Recognition*, 2019 (In Peer Review). [**IF**: 5.898, Q1]
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- J1. M. Tanveer, S. Sharma, K. Muhammad* <u>Large scale least squares twin SVMs</u>, ACM Transactions on Internet Technology, March 2020, (Online), [IF: 2.382, Q2]
- J2. Cao, B., Fan, S., Zhao, J., Yang, P., Muhammad, K*., & Tanveer, M. <u>Quantum-enhanced multiobjective large-scale</u> optimization via parallelism. *Swarm and Evolutionary Computation*, April 2020, (In Press), [IF: 6.33, Q1]
- **J3.** Khan Muhammad*, Joel Rodrigues, et al., <u>Energy-Efficient Monitoring of Fire Scenes for Intelligent Networks</u>, *IEEE Network*, 2020 (Accepted, will be live soon). [**IF**: 7.503, Q1]
- J4. Feng Chen, Khan Muhammad*, Shui-Hua Wang*, <u>Three-dimensional reconstruction of CT image features based on</u> <u>multi-threaded deep learning calculations</u>, Elsevier PRL, (In Production), [IF: 2.810, Q2]
- J5. Xeu Chao Zhang, Khan Muhammad*, <u>Adaptive Enhancement Method for Multimode Remote Sensing Image based</u> on Lidar, Mobile Network and Applications, (In Production) [IF: 2.39, Q2]
- J6. Carlos, Suane Silva, Raul Victor, Pedro Filho, Khan Muhammad*, Victor Hugo C. de Albuquerque, <u>An Open IoHT-based Deep Learning Framework for Online Medical Image Recognition</u>, *IEEE Journal on Selected Areas in Communications*, (Accepted), [IF: 9.302, Q1]
- J7. Khan Muhammad*, Weiping Ding*, et al. Effective Template Update Mechanism in Visual Tracking with Background Clutter, Neurocomputing, (Accepted), [IF: 4.072, Q1]
- J8. Muhammad Sajjad, Muhammad Irfan, Khan Muhammad*, et al., <u>An Efficient and Scalable Simulation Model for Autonomous Vehicles with Economical Hardware</u>, IEEE Transactions on Intelligent Transportation Systems, (Early Access), [IF: 5.744, Q1]
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- J12. Xiaolong Liu, Chia-Chen Lin, Khan Muhammad*, Fadi Al-Turjman, Shyan-Ming Yuan, Joint Data Hiding and Compression Scheme Based on Modified BTC and Image Inpainting, IEEE Access, August 2019, Page(s) 116027-116037, (Published), [IF: 4.098, Q1]

- J13. Santos Kumar Baliarsingh, Swati Vipsita, Khan Muhammad*, Sambit Bakshi, <u>Analysis of high-dimensional biomedical data using an evolutionary multi-objective emperor penguin optimizer</u>, *Swarm and Evolutionary Computation*, August 2019, Volume 48, Page(s) 262-273, (Published), [IF: 6.330, Q1]
- J14. Mehr Yahya Durrani, Rehan Tariq, Farhan Aadil, Muazzam Maqsood, Yunyoung Nam, Khan Muhammad*, <u>Adaptive node clustering technique for smart ocean under water sensor network (SOSNET)</u>, *Sensors*, 2019, 19(5), 1145, (Published), [IF: 3.031, Q1]
- J15. Ashraf Darwish, Aboul Ella Hassanien, Mohamed Elhoseny, Arun Kumar Sangaiah, Khan Muhammad*, <u>The impact of the hybrid platform of internet of things and cloud computing on healthcare systems: opportunities, challenges, and open problems</u>, *Journal of Ambient Intelligence and Humanized Computing*, Volume 10, Page(s) 4151–4166 (2019), (Published), [IF: 1.910, Q3]
- J16. Muhammad Sajjad, Sana Zahir, Amin Ullah, Zahid Akhtar, Khan Muhammad*, <u>Human Behavior Understanding in</u> <u>Big Multimedia Data Using CNN based Facial Expression Recognition</u>, *Mobile Networks and Applications*, September 2019, (In Press), [IF: 1.910, Q3]
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- C5. Jamil Ahmad, Khan Muhammad, Sung-il Kwon, Seungmin Rho, and Sung Wook Baik, <u>Dempster-Shafer Fusion</u> <u>Based Gender Recognition for Speech Analysis Applications</u>, In *International Conference on Platform Technology and Service (PlatCon)*, 2016, (pp. 1-4). (Jeju, Republic of Korea).
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8. SKILLS

• Team management and coordination, Problem solving, Fluent in English, Project and funds acquisition skills and management, Excellent skills in his domain related to image and video processing.