

Dr. Shadan Khan Khattak

PERSONAL INFORMATION

Past/Relevant role: Research & Development Engineer
Video Algorithms Research Team
Panasonic R&D Centre Singapore

Current role: Assistant Professor & Course Coordinator (Digital Hardware)
Department of Computer Engineering
King Faisal University, Saudi Arabia

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QUALIFICATION

- **PhD. Multimedia Communication, 2014.**
 - School of Engineering & Sustainable Development, De Montfort University, UK.
 - Dissertation: Low Complexity Multiview Video Coding
- **MSc. Data Communication (*with Distinction*), 2009.**
 - Electrical & Electronic Engineering Department, The University of Sheffield, UK.
- **Bsc. Computer Systems Engineering, 2007.**
 - NWFP University of Engineering & Technology, Pakistan.

TEACHING EXPERIENCE

- **Department of Computer Engineering, King Faisal University, Ahsa, Saudi Arabia**
Assistant Professor and Course Leader (Digital Hardware) Nov. 2018 - Present
Courses Taught:
 - Digital Hardware
 - Selected Topics in Computer Engineering
 - Electronics
- **Department of Electrical Engineering, COMSATS IIT, Abbottabad, Pakistan**
Assistant Professor and Course Head (Signals & Systems) Nov. 2014 to Oct. 2018
Courses Taught:
 - Principles of Communication Systems (*BSc Electrical Engineering*)
 - Multimedia Data Compression (*MS Electrical Engineering*)
 - Digital Signal Processing (*BSc Electrical Engineering*)
 - Electric Circuit Analysis 1&2 (*BSc Computer Engineering*)
- **Faculty of Technology, De Montfort University, Leicester, UK.**
Technical Demonstrator Mar. 2011 to Feb. 2014
Courses:
 - Multimedia Communication (*MSc Communication Engineering*)
 - Digital Image Processing (*MSc Communication Engineering*)
 - Digital Signal Processing (*MSc Communication Engineering*)

REFEREED JOURNAL PUBLICATIONS

- S. Khan, N. Muhammad, S. Farwa, T. Saba, **S. Khattak**, and Z. Mahmood, Early CU Depth Decision and Reference Picture Selection for Low Complexity MV-HEVC, Symmetry, vol. 11, no. 4, pp. 454 – 462, 2019.
- A. Gul and **S. Khattak**, Bayesian Early Mode Decision Technique for Multiview Video Coding, Journal of Graphics, Vision and Image Processing, vol. 18, no. 1, pp. 15-24, 2018.
- **S. Khattak**, T. Maugey, R. Hamzaoui, S. Ahmad, and P. Frossard, Temporal and Inter-view consistent error concealment for Multiview plus Depth Video, IEEE Transactions on Circuits and Systems for Video Technology, vol. 26, no. 5, pp. 829-840, May 2016.

- **S. Khattak**, R. Hamzaoui, T. Maugey, S. Ahmad, and P. Frossard, Bayesian Early Mode Decision Technique for View Synthesis Prediction-enhanced Multiview Video Coding, *IEEE Signal Processing Letters*, vol. 20, no. 10, pp. 1126-1129, Nov. 2013.
- **S. Khattak**, R. Hamzaoui, S. Ahmad, and P. Frossard, Fast Encoding Techniques for Multiview Video Coding, *Signal Processing: Image Communication*, vol. 28, pp. 569-580, July 2013.

TECHNICAL REPORTS & BLOGS

- **S. Khattak**, Video Compression with Capability Beyond HEVC, Technical Report, Panasonic R&D Centre Singapore, PRDCSG-18-010, Mar. 2018,
- **S. Khattak**, Point Cloud Compression, Technical Report, Panasonic R&D Centre Singapore, PRDCSG-17-039, Dec. 2017,
- **S. Khattak**, Overview of the AOM AV1 Video Codec, Technical Report, Panasonic R&D Centre Singapore, PRDCSG-17-036, Nov. 2017,
- **S. Khattak**, HEVC Over Twitter, Technical Blog, Parabola Research & Development, UK, 2013.

PUBLICATIONS IN CONFERENCE PROCEEDINGS

- S. Awan, **S. Khattak**, Z. Khan, and Z. Mehmood, A Robust Face Recognition Method for Occluded and Low-Resolution Images. *International Conference on Applied and Engineering Mathematics (ICAEM 2019)*, 27 - 29 Aug. 2019 (Accepted).
- H. Ullah, M. Haq, **S. Khattak**, G. Khan, and Z. Mehmood, A Robust Method to Locate License Plates under Diverse Conditions. *International Conference on Applied and Engineering Mathematics (ICAEM 2019)*, 27 - 29 Aug. 2019 (Accepted).
- S. Nawaz and **S. Khattak**, Early decision of CU splitting, using base view information, for low complexity MV-HEVC. *International Multitopic Conference (INMIC 2017)*, Dec. 2017.
- **S. Khattak**, Framework for Low Complexity Multiview Video Coding. *PGNet'2013, Postgraduate Symposium on the Convergence of Telecommunications, Networking, and Broadcasting*, Liverpool, UK, June 2013.
- **S. Khattak**, R. Hamzaoui, S. Ahmad, and P. Frossard. Low Complexity Multiview Video Coding. *PCS'2012, Picture Coding Symposium*, Krakow, Poland, May 2012.

INDUSTRIAL EXPERIENCE

- **Panasonic Research & Development Centre, Singapore**
Research & Development Engineer Sept. 2017 to March 2018
 - Research & development of video quality improvement algorithms
 - Patent analysis and mapping
 - Providing training to staff on state-of-the-art video technologies
- **Parabola Research, Southampton, UK.**
Research Engineer Oct. 2013 to Sept. 2014
 - Research & development of fast algorithms in collaboration with BBC R&D
 - Analysis of video bitstream analyzer software
 - Delivering technical reports

LEADERSHIP EXPERIENCE

- Coordinator, Intelligent Systems Research Group, King Faisal University, Saudi Arabia.
- Course Coordinator, Digital Hardware, King Faisal University, Saudi Arabia.
- Course Head, Signals & Systems, COMSATS Institute of Information Technology (CIIT), Pakistan.
- Course Head, Digital Signal Processing, CIIT.
- Convenor, Digital Signal Processing Lab Committee, CIIT.

- PROFESSIONAL ACTIVITIES**
- Visiting Researcher, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland, 2012, 2013.
 - Member, IEEE.
 - Reviewer for IEEE Transactions on Circuits and Systems for Video Technology.
 - Reviewer for IEEE Transactions on Image Processing.
 - Reviewer for IEEE Access.
 - Reviewer for Signal Processing - Image Communication.
 - Reviewer for Journal of Visual Communication and Image Representation.
 - Member, Pakistan Engineering Council
- UNIVERSITY SERVICE**
- Member, Graduate Studies Committee, CCSIT, KFU.
 - Member, Quality Assurance Committee, CCSIT, KFU.
 - Member, Student Advising Committee, CCSIT, KFU.
 - Member, Outcome based Education (OBE) implementation committee, CIIT.
 - Member, Best IT Innovation Award (BITA) projects evaluation committee, CIIT.
- RELATED TRAININGS**
- Integrating Team-based Learning with Social Media to Support Millennial Learners' Engagement (KFU, Saudi Arabia).
 - Flipping the Classroom: Maximizing in-class Practice and Opportunities for Collaborative Learning (KFU, Saudi Arabia).
 - Clean Business Compliance (Panasonic R&D Centre, Singapore).
 - Essential Management Skills (Panasonic R&D Centre, Singapore).
 - Erasmus Intensive Programme on "Multimedia and the Future Internet: Moving Social and Mobile" (Cumberland Lodge, The Great Park, Windsor, UK, August 5 - 16, 2013).
 - Beginning to Teach in Higher Education (De Montfort University, UK).
 - Faculty Development Workshop (CIIT, Pakistan).
- RESEARCH SUPERVISION**
- **PhD Supervision**
 - Shahid Nawaz, 2nd supervisor, on going.
 - Asif Khan, supervisory committee member, on going.
 - Yasir Ali, supervisory committee member, **successfully completed - June. 2019.**
 - Imran Shehzad, supervisory committee member, on going.
 - **MSc Supervision**
 - Muhammad Shahzad, 1st supervisor, **successfully completed - Sept. 2016.**
 - Sara Ali, supervisory committee member, **successfully completed - Sept. 2016.**
 - Aqib Javed, supervisory committee member, **successfully completed - Sept. 2016.**
 - Fahad Masood, supervisory committee member, **successfully completed - Sept. 2015.**
- RESEARCH INTERESTS**
- 2D/3D video compression standards (e.g. H.264/AVC, MVC, HEVC, 3DV etc.)
 - Low-complexity video compression algorithms.
 - View synthesis and depth image based rendering techniques.
 - Error concealment techniques for video transmission.
 - Quality of Experience in video communication.
- REFERENCES AVAILABLE TO CONTACT**
- Dr. Raouf Hamzaoui** (e-mail: rhamzaoui@dmu.ac.uk; phone: +44-116-207-8159)
- Professor, School of Engineering and Sustainable Development, De Montfort University.
 - ◊ The Gateway Building 6.55, The Gateway, Leicester LE1 9BH, UK.
- Dr. Shakeel Ahmad** (e-mail: shakeel.ahmad@solent.ac.uk; phone: +44-238-201-6095)
- Senior Lecturer, School of Media Arts, and Technology, Southampton Solent University.
 - ◊ RM410, East Park Terrace, Southampton SO14 0YN, UK.
- Dr. Imran Taj** (e-mail: imran.taj@gov.bc.ca;
- Senior Team Lead, Information Systems Branch, Ministry of Attorney General Provincial Government of British Columbia

◇ Victoria, British Columbia, Canada.