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
Department of Computer Engineering
King Faisal University, Saudi Arabia

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QUALIFICATION

- **PhD. Multimedia Communication, 2014.**
  - Institute: De Montfort University, UK.
  - Dissertation: Low Complexity Multiview Video Coding

- **MSc. Data Communication, 2009.**
  - Institute : The University of Sheffield, UK.

- **Bsc. Computer Systems Engineering, 2007.**
  - Institute: NWFP University of Engineering & Technology, Pakistan.

RESEARCH
INTERESTS

- 2D/3D video compression standards (e.g. H.264/AVC, MVC, HEVC, VVC, VP9, AOM AV1 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.
- Scalable video coding.

RELEVANT
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
  - Training of team members on latest video technologies (e.g. AOM AV1)

- **Parabola Research, Southampton, UK.**
  Research Engineer   Oct. 2013 to Sept. 2014
  - Research & development of fast video coding techniques
  - Delivering technical reports

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.

TRAININGS ATTENDED	• Panasonic Basic Business Philosophy (Panasonic R&D Centre, Singapore). • 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).
SELECTED 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. • **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.
SELECTED CONFERENCE PUBLICATIONS	• S. Nawaz and **S. Khattak**, Early decision of CU splitting, using base view information, for low complexity MV-HEVC. International Multitopic Conference (INMIC 2017), (accepted). • **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.
PROFESSIONAL ACTIVITIES	• Reviewer for IEEE Transactions on Circuits and Systems for Video Technology. • Reviewer for IEEE Transactions on Image Processing. • Reviewer for Signal Processing - Image Communication. • Reviewer for Journal of Visual Communication and Image Representation. • Reviewer for Signal, Image and Video Processing.
AWARDS & MEMBERSHIPS	• **Best Student Group Award** *Erasmus Intensive Program on Multimedia and the Future Internet: Moving Social and Mobile Windsor, UK.* Aug. 5–16, 2013 • **Laxton Bequest Travel Award** *De Montfort University, UK.* 2012 • **PhD Studentship** *De Montfort University, UK.* 2010–2013 • **MSc Scholarship** *COMSATS Institute of Information Technology, Pakistan* 2008–2009 • **Member** *Institute for Electrical and Electronics Engineers (IEEE).* Membership no.: 92524277 • **Registered Engineer** *Pakistan Engineering Council (PEC).* Registration No. COMP4812 • **HEC Approved PhD Supervisor** *Higher Education Commission (HEC), Pakistan.*

OTHER EXPERIENCE	• **Department of Computer Engineering, King Faisal University, Ahsa, Saudi Arabia**

Assistant Professor   Nov. 2018 - Present

Courses Taught:
- Electronics
- Selected Topics in Computer Science

- **Department of Electrical Engineering, COMSATS IIT, Abbottabad, Pakistan**

  Assistant Professor and Course Head in 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)*
  - Digital Logic Design *(BSc Computer Engineering)*
  - Electric Circuit Analysis 1&2 *(BSc Computer Engineering)*
  - Applied Physics for Engineers *(BSc Electronic Engineering)*

- **School of Engineering and Sustainable Development, 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)*
  - Signal Processing *(BSc Electrical Engineering)*

ADMINISTRATIVE EXPERIENCE
- Course Head, Signals & Systems, CIIT.
- Course Head, Digital Signal Processing, CIIT.
- Lab Head, Digital Signal Processing, CIIT.
- Member, Outcome based Education (OBE) implementation committee, CIIT.
- Member, Best IT Innovation Award (BITA) projects evaluation committee, CIIT.

RESEARCH SUPERVISION
- **PhD Supervision**
  - Shahid Nawaz, 1st supervisor, on going.
  - Asif Khan, supervisory committee member, on going.
  - Yasir Ali, supervisory committee member, on going.
  - Imran Shehzad, supervisory committee member, on going.
- **MSc Supervision**
  - Muhammad Shahzad, 1st supervisor, successfully completed - Sept. 2016.
  - Waseem Jadoon, 1st supervisor, on going.
  - Fahad Masood, supervisory committee member, successfully completed - Sept. 2015.
  - Sara Ali, supervisory committee member, successfully completed - Sept. 2016.
  - Aqib Javed, supervisory committee member, successfully completed - Sept. 2016.

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.