MUHAMMAD UMAIR HASSAN

CONTACT INFORMATION

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University of Jinan,
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RESEARCH INTERESTS

Computer vision and image processing including image retrieval, image segmentation, salient object detection, deep learning, and instance retrieval. Currently, I am working on **Instance Retrieval Based on Combination of Geometric Features and Convolutional Neural Network**. Previously, I have worked on information retrieval, wireless networking, and cloud computing and security.

EDUCATION

University of Jinan, China **Sep 2017 – Present**
MS Computer Science and Technology
CGPA: 4.23/5.00 | **Percentage:** 87.23%
Advisor: Prof. Xiuyang Zhao

University of the Punjab, Pakistan **Oct 2013 – Jul 2017**
BS Computer Science
CGPA: 3.32/4.00

PUBLICATIONS

[1] **HASSAN, Muhammad Umair**; SHOHAG, Md Shakil Ahamed; NIU, Dongmei; ZHAO, Wenshuang; ZHAO, Xiuyang. "A framework for the revision of large-scale image retrieval benchmarks", Proc. SPIE 11179, Eleventh International Conference on Digital Image Processing (ICDIP 2019), 111794D (14 August 2019); https://doi.org/10.1117/12.2539640.

[2] ZHANG, Mingxuan; **HASSAN, Muhammad Umair**; NIU, Dongmei; ZHAO, Xiuyang; LIU, Mingjun; ZHOU, Jin; LI, Na. "Shape Correspondence based Effective Combination of Linear and Quadratic Assignment Matrices", Proc. SPIE 11179, Eleventh International Conference on Digital Image Processing (ICDIP 2019), 111794E (14 August 2019); https://doi.org/10.1117/12.2539652.

[3] SHOHAG, Md Shakil Ahamed; **HASSAN, Muhammad Umair**; NIU, Dongmei et al. "Graph Based Image Matching Using the Fusion of Several Kinds of Features" In Proceedings of the 2019 4th International Conference on Multimedia Systems and Signal Processing (ICMSSP 2019). ACM, New York, NY, USA, 188-193. DOI: https://doi.org/10.1145/3330393.3330421.

[4] **HASSAN, Muhammad Umair**; NIU, Dongmei; ZHAO, Xiuyang. "Salient Region Detection based on CNN Fusion of Two Types of Saliency Models" IET Computer Vision. (**Under Review**).

[5] ZHANG, Mingxuan; NIU, Dongmei; **HASSAN, Muhammad Umair**; ZHAO, Xiuyang; LIU, Mingjun; ZHOU, Jin; LI, Na. "Shape Matching Based on the Combination of Three Types of Graphic Information", Computer Graphics Forum. (**Under Review**).

[6] LI, Mai; ZHANG, Mingxuan; NIU, Dongmei; **HASSAN, Muhammad Umair**; ZHAO, Xiuyang; LI, Na. "Point Set Registration Based on Feature Point Constraints", The Visual Computer (TVCJ), (**Under Review**).

[7] YAN, Anli; CHEN, Zhenxiang; **HASSAN, Muhammad Umair**; WANG, Lin; PENG, Lizhi; ZHAO, Chuan. "Deep Neural Network Rule Extraction for Traffic Behavior Detection", 15th International Conference on Mobile Ad-hoc and Sensor Networks, Hong Kong. (**Submitted**).

[8] YAN, Anli; CHEN, Zhenxiang; **HASSAN, Muhammad Umair**; WANG, Lin; ZHAO, Chuan. "Dudroid: An Incremental Updating Model for Detecting Malicious Behavior", 15th International Conference on Mobile Ad-hoc and Sensor Networks, Hong Kong. (**Submitted**)

[9] **HASSAN, Muhammad Umair** et al. "An Overview of Schema Extraction and Matching Techniques", 2018 2nd IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference (IMCEC 2018), Xi'an, China, 2018, pp. 1290-1294. doi: 10.1109/IMCEC.2018.8469502.

[10] **HASSAN, Muhammad Umair** et al. "Web-Logs Prediction with Web Mining", 2018 2nd IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference (IMCEC 2018), Xi'an, China, 2018, pp. 1295-1299. doi: 10.1109/IMCEC.2018.8469256.

[11] MA, Yingjun; **HASSAN, Muhammad Umair**; NIU, Dongmei; WANG, Liping. "Glandular cavity segmentation based on local correntropy-based K-means (LCK) clustering and morphological operations" In Third International Workshop on Pattern Recognition, vol. 10828, p. 108280H. International Society for Optics and Photonics, 2018. doi: 10.1117/12.2502002.

[12] MA, Yingjun; **HASSAN, Muhammad Umair**; NIU, Dongmei; WANG, Liping. "The Segmentation of Glandular Cavity based on K-means and Mathematical Morphology" The 4th IEEE International Conference on Systems and Informatics (ICSAI 2017), Hangzhou, China, 2017. doi: 10.1109/ICSAI.2017.8248484.

[13] SHEN, Jingya; CHEN, Zhenxiang; WANG, Shanshan; ZHU, Yuhui; **HASSAN, Muhammad Umair**. "DroidDetector: a traffic-based platform to detect android malware using machine learning" In Third International Workshop on Pattern Recognition, vol. 10828, p. 108280N. International Society for Optics and Photonics, 2018. doi: 10.1117/12.2501923.

[14] YAN, Anli; CHEN, Zhenxiang; WANG, Lin; PENG, Lizhi; **HASSAN, Muhammad Umair**; ZHAO, Chuan. "Neural Network Rule Extraction for Real Time Traffic Behavior Identification", 2018 International Conference on Security, Pattern Analysis, and Cybernetics, Jinan, China.

[15] **HASSAN, Muhammad Umair** et al., (2019) "MAC Protocols: A Comparative Study on Throughput Analysis and Improved Leach", International Journal of Computer Networks and Communications (IJCNC), Vol. 11, No. 4, ISSN: 0974-9322, July 2019. (**Accepted**)
[16] **HASSAN, Muhammad Umair** et al., (2019) DEAR-2: An Energy-Aware Routing Protocol with Guaranteed Delivery in Wireless Ad-hoc Networks. In: Jan M., Khan F., Alam M. (eds) Recent Trends and Advances in Wireless and IoT-enabled Networks. EAI/Springer Innovations in Communication and Computing. Springer, Cham. doi: 10.1007/978-3-319-99966-1_20.
[17] **HASSAN, Muhammad Umair** et al., "A Comparative Study on Frequent Link Disconnection problems in VANETs", EAI Endorsed Transactions on Energy Web and Information Technologies, Vol. 18, No. 17, April 2018. doi: 10.4108/eai.10-4-2018.154444.
[18] **HASSAN, Muhammad Umair**; UMAIR, Muhammad; ALI, Haider. "Novel Approaches to Improve Software Quality", International Journal of Software Engineering and Its Applications, Vol. 11, No. 6, June 2017, pp. 15-24. http://dx.doi.org/10.14257/ijseia.2017.11.6.02.
[19] **HASSAN, Muhammad Umair**; MUBASHIR, Muhammad; SHABIR, Muhammad Ahmad; MUHIBB ULLAH, Muhammad. "Software Quality Assurance Techniques: A Review", International Journal of Information, Business and Management, Vol.10, No.4, 2018. ISSN: 2218-046X.
[20] SHAUKAT, Kamran; **HASSAN, Muhammad Umair**; MASOOD, Nayyer; SHAFAT, Ahmad. "Stop Words Elimination in Urdu Language using Finite State Automaton", International Journal of Asian Language Processing, Vol. 27, No. 2, 2017. ISSN: 0219-5968. pp. 21-32.
[21] SHAUKAT, Kamran; **HASSAN, Muhammad Umair**. "Cloud Security through Encryption Techniques", Transylvanian Review, Vol. XXV, No. 15, March 2017. ISSN: 1221-1249. pp. 4037-4042.
[22] SHAUKAT, Kamran; SHAFAT, Ahmad; **HASSAN, Muhammad Umair**. "An Efficient Stop Word Elimination Algorithm for Urdu Language", 2017 14th IEEE International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), Phuket, Thailand. doi: 10.1109/ECTICon.2017.8096386.
[23] **HASSAN, Muhammad Umair**; MUMTAZ, Nadia. "AI in Assisting the Elderly and People with Disabilities", International Journal of Research and Engineering, [S.l.], Vol. 3, No. 8, Aug. 2016. ISSN 2348-7860. Available at: <http://digital.ijre.org/index.php/int_j_res_eng/article/view/201>.
[24] SHAUKAT, Kamran; **HASSAN, Muhammad Umair**; ALI, Haider, SHAH ZAIB, Muhammad; MUHIBB ULLAH, Muhammad. "An Overview of Service Oriented Architecture, Cloud Computing and Azure Platform", International Journal of Computer Science and Information Security, Vol. 14 No. 7, July 2016, pp. 891-896.

WORK EXPERIENCE

Shandong Provincial Key Laboratory of Network Based Intelligent Computing, University of Jinan, China — **Sep 2018 – Present**

Research Assistant, Computer Vision and Digital Image Processing

- Image Retrieval
- Medical Image Segmentation
- Salient Object Detection
- Image Matching

Department of Information Technology, University of the Punjab, Pakistan — **Mar 2015 – Aug 2016**

Teacher Assistant, Database Systems & Object-Oriented Programming

PROJECTS

C++: Airline Reservation System
ASP.Net: Chat Messenger Application, Student Web Portal System, Online Shopping & Cart System
Android: Book Corner App

ACHIEVEMENTS & AWARDS

- Fully Funded Chinese Government Scholarship for Master Studies (2017-2020)
- Fully Funded Scholarship by VISTEC to participate in Machine Learning Research School (MLRS 2019), Bangkok, Thailand
- Poster Presentation at Machine Learning Research School, Bangkok, Thailand
- Delivered Oral Presentation at 11th ICDIP 2019, Guangzhou, China
- Student Best Paper Award at IEEE IMCEC 2018, Xian, China
- 3rd Position in SISE Graduate Academic Research Competition, Jinan, China
- Delivered Oral Presentation at IEEE IMCEC 2018, Xian, China
- Delivered Oral Presentation at EAI FUTURE5V 2017, Islamabad, Pakistan

SKILLS

Programming: Python, C/C++, C#, MATLAB, Java
Public Library: PyTorch, Tensorflow, Keras, Caffe, OpenCV
Environments & IDE: Linux, Windows, Visual Studio 2015, NetBeans
Language: English (fluent), Mandarin (basic), Urdu (native)