MUHAMMAD UMAIR HASSAN

CONTACT INFORMATION

School of Information Science and Engineering,
University of Jinan,
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RESEARCH INTERESTS

Computer vision and image processing, including image retrieval, shape matching, salient object detection, and machine learning. 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 – Jun 2020**
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, M. U.,** Niu, D., Zhao, X., Shohag, M. S. A., Ma, Y., & Zhang, M. "Salient Object Detection based on CNN Fusion of Two Types of Saliency Models," 2019 34th International Conference on Image and Vision Computing New Zealand (IVCNZ). doi:10.1109/ivcnz48456.2019.8960994.

[2] **Hassan, M. U.,** Shohag, M. S. A., Niu, D., Shaukat, K., Zhang, M., Zhao, W., & Zhao, X. "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.

[3] **Hassan, M. U.,** Niu, D., & Zhao, X. "Asymmetric Learning and Binary Generative Adversarial Network for Instance Retrieval," Neurocomputing. (**Under Review**)

[4] Yan, A., Chen, Z., **Hassan, M. U.,** Wang, L., Peng, L., & Zhao, C. "Effective Detection of Mobile Malware Behavior based on Explainable Deep Neural Network," Neurocomputing. (**IF: 4.072**) (**Accepted**).

[5] Li, M., Zhang, M., Niu, D., **Hassan, M. U.,** Zhao, X., & Li, N. "Point Set Registration Based on Feature Point Constraints," The Visual Computer, pp.1-14. https://doi.org/10.1007/s00371-019-01771-x. (**IF:1.415**)

[6] Zhang, M., **Hassan, M. U.,** Niu, D., Li, N., Liu, M., Zhou, J., & Zhao, X. "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.

[7] Shohag, M. S. A., **Hassan, M. U.,** Niu, D., Kong, X., Zhao, X., & Rahman, F. "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.

[8] Shabir, M. A., **Hassan, M. U.,** Yu, X., & Li, J. "Tyre Defect Detection Based on GLCM and Gabor Filter," 2019 22nd International Multitopic Conference (INMIC), Islamabad, Pakistan, 2019, pp. 1-6. doi: 10.1109/INMIC48123.2019.9022777.

[9] Shabir, M. A., **Hassan, M. U.,** Yu, X., & Li, J. "Extensive Techniques to Detect Defects in Tyres through Radiography," 2019 22nd International Multitopic Conference (INMIC), Islamabad, Pakistan, 2019, pp. 1-4. doi: 10.1109/INMIC48123.2019.9022797.

[10] Zhang, M., Niu, D., **Hassan, M. U.,** Zhao, X., Liu, M., Zhou, J., & Li, N. "Shape Matching Based on the Combination of Three Types of Graphic Information," Computer Graphics Forum. (**Under Review**).

[11] **Hassan, M. U.,** Shaukat, K., Niu, D., Mahreen, S., Ma, Y., Haider, F., & Zhao, X. "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.

[12] **Hassan, M. U.,** Shaukat, K., Niu, D., Mahreen, S., Ma, Y., Zhao, X., & Shabir, M. A. "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.

[13] Ma, Y., Niu, D., Zhang, J., **Hassan, M. U.,** & Zhao, X. "An Unsupervised Approach for 3D Medical Image Registration," In Proceedings of the 2019 7th International Conference on Information Technology: IoT and Smart City (ICIT 2019). ACM, New York, NY, USA, 259–263. doi: https://doi.org/10.1145/3377170.3377273.

[14] Yan, A., Chen, Z., **Hassan, M. U.,** Wang, L., Peng, L., & Zhao, C. "Incremental Ensemble of Ensembles for Detecting Malicious Behavior," Transactions on Network Science and Engineering. (**Under Review**)

[15] Ma, Y., **Hassan, M. U.,** Niu, D., & Wang, L. "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.

[16] Ma, Y., **Hassan, M. U.,** Niu, D., & Wang, L. "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.

[17] Shen, J., Chen, Z., Wang, S., Zhu, Y., & **Hassan, M. U.** "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.

[18] Yan, A., Chen, Z., Wang, L., Peng, L., **Hassan, M. U.,** & Zhao, C. "Neural Network Rule Extraction for Real Time Traffic Behavior Identification," 2018 International Conference on Security, Pattern Analysis, and Cybernetics (SPAC), Jinan, China, 2018, pp. 146-151. doi: 10.1109/SPAC46244.2018.8965635.

[19] **Hassan, M. U.,** Shaukat, K., Yan, A., Yaqoob, I., & Ma, Y. "MAC Protocols: A Comparative Study on Throughput Analysis and Improved Leach," The 17th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON 2020), Phuket, Thailand. (**Accepted**)

[20] **Hassan, M. U.,** Shahzaib, M., Shaukat, K., Hussain, S. N., Mubashir, M., Karim, S., & Shabir, M. A. "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.

[21] **Hassan, M. U.,** Karim, S., Shah, S. K., Abbas, S., Yasin, M., Shahzaib, M., & Umair, M. "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.

[22] **Hassan, M. U.,** Umair, M., & Ali, H. "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.

[23] **Hassan, M. U.,** Mubashir, M., Shabir, M. A., & Ullah, M. M. "Software Quality Assurance Techniques: A Review," International Journal of Information, Business and Management, Vol.10, No.4, 2018. ISSN: 2218-046X.

[24] Shaukat, K., **Hassan, M. U.,** Masood, N., & Shafat, A. B. "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.

[25] Shaukat, K., & **Hassan, M. U.** "Cloud Security through Encryption Techniques", Transylvanian Review, Vol. XXV, No. 15, March 2017. ISSN: 1221-1249. pp. 4037-4042.

[26] Dar, K. S., Shafat, A. B., & **Hassan, M. U.** "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.

[27] **Hassan, M. U.,** & Mumtaz, N. "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>.

[28] Shaukat, K., **Hassan, M. U.,** Ali, H., Shah Zaib, M. & Ullah, M. M. "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 Deep Learning

- Image and Object Retrieval
- Machine Learning
- Medical Imaging

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

Teacher Assistant, Database Systems & Object-Oriented Programming

PROJECTS

Android: Book Corner App (Final Year Project at Undergraduate Level)

1. User Login
2. Membership with Book Corner (Pro Version of Application)
3. Search Books (Category, Book Name, Author Name wise)
4. Maps module implemented

ASP.Net: Student Web Portal System (Semester Project at Undergraduate Level)

1. User Login System
2. Students and Staff members have access to the system
3. Student Information System
4. jQuery used for animation and sliders

ASP.Net: Online Shopping & Cart System (Semester Project at Undergraduate Level)

1. Any member can register and view available products.
2. Only a registered member can purchase multiple products regardless of quantity.
3. There are three roles available: Visitor, User and Admin.
4. Online Shopping Master Page (Similar MasterPage for Visitor, User and Admin)

C++: Airline Reservation System (Semester Project at Undergraduate Level)

1. User Login System
2. Customer Management System
3. Customer Login System
4. Graphical User Interface

ONLINE COURSES

- **IBM Cognitive Class** – Python for Data Science
- **IBM Cognitive Class** – Machine Learning with Python
- **IBM Cognitive Class** – Deep Learning Fundamentals
- **IBM Cognitive Class** – Deep Learning with TensorFlow

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
- Student Best Paper Award at IEEE IMCEC 2018, Xian, China
- 3rd Position in SISE Graduate Academic Research Competition, Jinan, China

CONFERENCE PRESENTATIONS

- Delivered Oral Presentation at 34th Image and Vision Computing, New Zealand
- Poster Presentation at Machine Learning Research School, Bangkok, Thailand
- Delivered Oral Presentation at 22nd INMIC 2019, Islamabad, Pakistan
- Delivered Oral Presentation at 11th ICDIP 2019, Guangzhou, 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
Languages & Scores: English (fluent), IELTS 6.5 (overall), Mandarin (basic), Urdu (native)