Dr. Muhammad Hassan Khan

Assistant Professor

College of Information Technology,

University of the Punjab,

Samsani Road, Lahore - 54590, Pakistan

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Education

Ph.D. Computer Science [**Sep. 2018**]
Universität Siegen, Siegen, Germany
Dissertation title: "Human Activity Analysis in visual Surveillance and Healthcare"
Advisor: Prof. Marcin Grzegorzek

M.Phil. Computer Science [**Sep. 2010**]
University of the Punjab, Lahore, Pakistan
Thesis title: "Some New Approached to Image Inpainting"

B.S. Information Technology [**Sep. 2005**]
BZ University, Multan, Pakistan

Research Interests

My current research interests include: Machine Learning, Human Activity Analysis, Gait Biometrics, and Movement Analysis, in particular, using visual data. I have worked on image/video data to develop the algorithms for the classification of objects and human activities. In past, I have worked from software engineer to project manager; and experienced with variety of tools and technologies.

Journal Publications

1. M.H. Khan, M.S. Farid, M. Grzegorzek, "A generic codebook based approach for gait recognition," *Multimedia Tools and Applications*, pp. 1–24, 2019

2. M.H. Khan, M.S. Farid, M. Grzegorzek, "Spatiotemporal features of human motion for gait recognition," *Signal, Image and Video Processing*, pp. 1–8, Mar. 2019

3. S.A.H. Tabatabaei, A. Delforouzi, M.H. Khan, T. Wesener, M. Grzegorzek, "Automatic Detection of the Cracks on the Concrete Railway Sleepers," *International Journal of Pattern Recognition and Artificial Intelligence*, pp. 1–8, Mar. 2019

4. M.H. Khan, M. Schneider, M.S. Farid, M. Grzegorzek, "Detection of infantile movement disorders in video data using deformable part-based model," *Sensors*, vol. 18, no. 10, pp. 3202, Sep. 2018

5. M.H. Khan, J. Helsper, M.S. Farid, M. Grzegorzek, "A computer vision-based system for monitoring vojta therapy," *International Journal of Medical Informatics*, vol. 113, pp. 85–95, May 2018

6. M.H. Khan, M. Grzegorzek, "Vojta-Therapy: A Vision-Based Framework to Recognize the Movement Patterns," *International Journal of Software Innovation*, vol. 5, Issue 3, pp. 18–32, Jul. 2017

Books/Book Chapters

7. M.H. Khan, *Human Activity Analysis in visual Surveillance and Healthcare*, 2018, Logos Verlag Berlin GmbH

8. O. Tiebe, C. Yang, M.H. Khan, M. Grzegorzek, and D. Scarpin, "Stripes-Based Object Matching,"in *Computer and Information Science*, pp. 59–72, Jun. 2016, Springer

Conference Publications

9. M.H. Khan, M.S. Farid, M. Zahoor, M. Grzegorzek, "Cross-view Gait Recognition using Nonlinear View Transformations of Spatiotemporal Features," in *Proc. 25th IEEE International Conference on Image Processing (ICIP)*, pp. 773–777, Oct. 2018

10. M.H. Khan, M.S. Farid, M. Grzegorzek, "Using a Generic Model for Codebook-based Gait Recognition Algorithms," in *Proc. 6th IAPR/IEEE International Workshop on Biometrics and Forensics*, pp. 1–7, June 2018

11. A. Delforouzi, S.A.H. Tabatabaei, M.H. Khan, M. Grzegorzek, "A Vision-Based Method for Automatic Crack Detection in Railway Sleepers," in *Proc. of the 10th International Conference on Computer Recognition Systems (CORES)*, pp. 73–82, May 2017

12. M.H. Khan, M.S. Farid, M. Grzegorzek, "Person Identification using Spatiotemporal Motion Characteristics," in *Proc. 24th IEEE International Conference on Image Processing (ICIP)*, pp. 166–170, Sep. 2017

13. M.S. Farid, M. Lucenteforte, M.H. Khan, M. Grangetto, "Semi-automatic Segmentation of Scattered and Distributed Objects," in *Kurzynski M., Wozniak M., Burduk R. (eds) Proc. of the 10th International Conference on Computer Recognition Systems (CORES) 2017. Advances in Intelligent Systems and Computing*, vol 578. Chapter 12, pp. 110-119, May 2017, Springer, Cham

14. M.H. Khan, F. Li, M.S. Farid, M. Grzegorzek, "Gait Recognition using Motion Trajectory Analysis," in *Kurzynski M., Wozniak M., Burduk R. (eds) Proc. of the 10th International Conference on Computer Recognition Systems (CORES) 2017. Advances in Intelligent Systems and Computing*, vol 578. Chapter 8, pp. 73–82, May 2017, Springer, Cham

15. M.H. Khan, J. Helsper, Z. Boukhers, M. Grzegorzek, "Automatic recognition of movement patterns in the vojtatherapy using RGB-D data," in *Proc. 23rd IEEE International Conference on Image Processing (ICIP)*, pp. 1235–1239, Sep. 2016

16. M.H. Khan, K. Shirahama, M.S. Farid, M. Grzegorzek, "Multiple Human Detection in Depth Images," in *Proc. 18th IEEE International Workshop on Multimedia Signal Processing (MMSP)*, pp. 1–6, Sep. 2016

17. M.H. Khan, J. Helsper, C. Yang, M. Grzegorzek, "An automatic vision-based monitoring system for accurate Vojta therapy," in *Proc. 15th IEEE International Conference on Computer Information Science (ICIS)*, pp. 1–6, Jun. 2016

18. M.S. Farid, H. Khan, A. Mahmood, "Image Inpainting using Cubic Hermit Spline," in *Proc. SPIE 8285, International Conference on Graphic and Image Processing (ICGIP 2011)*, 82854R, Sep. 2011

19. M.S. Farid, H. Khan, A. Mahmood, "Image Inpainting based on Pyramids," in *Proc. 10th IEEE International Conference on Signal Processing (ICSP)* pp. 711–715, Nov. 2010

20. M.S. Farid, H. Khan, "Image Inpainting using Dynamic Weighted Kernels," in *Proc. 3rd IEEE International Conference on Computer Science and Information Technology (ICCSIT)*, pp. 252–255, July 2010

Research Grants

- [Mar. 2012] Research Grant of Rs. 125K from University of the Punjab, Lahore, Pakistan.

- [Sep. 2011] Research Grant of Rs. 125K from University of the Punjab, Lahore, Pakistan.

Honors/ Awards/ Grants

- Best paper award for "A Vision-Based Method for Automatic Crack Detection in Railway Sleepers" at CORES 2017.

- [Nov. 2012] Scholarship for PhD study at Universität Siegen, Germany (Jan. 2015 - Dec. 2017) from University of the Punjab, Lahore, Pakistan.

Languages/ Tests

- English

- Urdu (National Language)

- Punjabi (Native Language)

- NTS GAT (General): 84.23% (2007)

Employment, University of the Punjab, Pakistan.

Assistant Professor   *Nov. 2014 to present*
Courses: Pattern Recognition, Advance Web GIS, Web Engineering

Lecturer   *Sep. 2007 - Nov. 2014*
Courses: Programming Fundamental, Object Oriented Programming, Web Development, Internet Programming, Enterprise Software Development

Head of Agile Technologies   *Sep. 2007 - Dec. 2014*
Activities: Leading a team for the automation of university systems. We developed and deployed a complete ERP system to fulfill the academics and administrative requirements of the university.

Employment, University of Management and Technology, Pakistan.

Software Engineer   *Mar. 2006 - Aug. 2007*
Worked as Software Engineer to develop and provide the support of various automated solutions to the university. In particular, I developed/customized a complete Campus Management System for the faculty, staff and students.