Yawar Rehman, PhD

Assistant Professor (on leave)
Electronic Department
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I am available for networking and collaboration. Feel free to reach out through the following platforms to discuss potential opportunities or projects

Linkedin
GitHub
Medium
Google Scholar

Area of specialization / research interest

Computer vision, deep learning, object detection and classification, image / signal processing, 3D point cloud modeling and classification

Experience: Academic + professional (15 years)

Position: **Assistant Professor (on leave) at Department of Electronic Engineering**, NED University of Engineering and Technology, Pakistan
Duration: 6 years (2017 – Present)
Job responsibilities: Teaching, research, and administration (please refer to the attached teaching portfolio for details)
Please click **here** to visit the departmental website.

Position: **Doctorate researcher at Hanyang university**, Republic of Korea
Duration: 1 year (2016 - 2017)
Job responsibilities: Research in deep neural networks
Company: Ministry of Trade, industry and energy Korea (MOTIE, Korea) funded project for performance enhancement techniques in the neural networks

Position: **Team lead and doctorate researcher at Hanyang university**, Republic of Korea
Duration: 8 months (Feb2015 - Sep2015)
Job responsibilities: Detection system development for the traffic signs
Company: Hyundai MnSoft funded project for traffic sign detection
Position: **Doctorate researcher at Hanyang university**, Republic of Korea
Duration: 2 years (Jan2013 - Jan2015)
Job responsibilities: Detection system development for the pedestrians and vehicles
Company: NRF funded project for pedestrian and vehicle detection

Position: **Lecturer at Department of Electronic Engineering**, NED University of Engineering and Technology, Pakistan
Duration: 7 years 9 months (Dec2009 – Sep2017)
Job responsibilities: Teaching and administration

Position: **Lab. Engineer / Jr. lecturer at Hamdard University**, Pakistan
Duration: 1 year 4 months (Sep2008 – Dec2009)
Job responsibilities: Lab instructor and lecturer

Featured research projects (03 selected projects)

The following projects' grants were won during my assistant professorship period. The project titles are showcased on the departmental **website**. Please refer to the attached research portfolio for more details.

1. Title: **Object detection with occlusion handling using CNN** (HEC/SRGP/2019)
My Role: Principal Investigator
Project Type: Research Project
Funding: **USD $2,681/-**
Duration: Jan. 2019 – Feb. 2021 (Completed)
Funding Organization: Higher Education Commission of Pakistan

2. Title: **3D scanning of industrial objects for quality assurance and rapid prototyping** (HEC/NRPU/2018)
My Role: Principal Investigator
Project Type: Research Project
Funding: **USD $40,000/-**
Duration: Aug. 2018 – June 2022 (Completed)
Funding Organization: Higher Education Commission of Pakistan

3. Title: **Digital surveying and modeling of buildings and surroundings using hand held laser scanners** (HEC/TDF/2018)
My Role: Co-Principal Investigator
Project Type: Technology Development
Funding: **USD $88,000/-**
Duration: Aug. 2018 – Feb. 2022 (Completed)
Funding Organization: Higher Education Commission of Pakistan

Education

Masters leading to Ph.D (Electronics and Communication Engineering) – **3.77 / 4.00 CGPA** *Hanyang university, Republic of Korea (2012-2017)*
Masters of sciences (Telecommunication Engineering) – **3.82 / 4.00 CGPA** *Hamdard university, Pakistan (2009-2011)*
Bachelors of engineering (Electronics Engineering) – **3.46 / 4.00 CGPA** *Mehran university of Engineering and Technology, Pakistan (2004-2008)*

Awards, honors, and services

1. **Research Grants of USD $130,000** by Higher Education Commission of Pakistan under the SRGP, NRPU, and TDF grants for the period 2018 to 2022.
2. **Technical Peer Reviewer** of IET Image Processing, IET Intelligent Transport Systems, IEEE Transactions on ITS, IEEE Access, and Higher Education of Pakistan Technical Grant Proposal reviewer in 2021. (web of science profile **link**)
3. **Session Chair** at International Conference on Emerging Trends in Telecommunication & Electronic Engineering for the Session on Signal Processing, NEDUET, 2018.
4. **Best Research Paper Award**, Conference on Patterns, France, 2015.
5. **MS leading to PhD Scholarship** by Higher Education Commission of Pakistan to Hanyang University, Republic of Korea, 2012.

6. **Travel Grant** from Higher Education Commission of Pakistan to Malaysia for Paper Presentation in IEEE Symposium on Industrial Electronics & Applications – ISIEA 2011.

PhD thesis supervision

Currently **four (04) PhD scholars are being supervised** in the field of computer vision and deep learning at the Department of Electronic Engineering, NED university.

Publications

2023

1. S.J. Rind, S. Javed, **Y. Rehman**, and M. Jamil, “Sliding mode control rotor flux MRAS based speed sensorless induction motor traction drive control for electric vehicles”, AIMS Electronics and Electrical Engineering, 7(4), 2023 *(JCR indexed)*
2. M. Alvi, W.T. Toor, **Y. Rehman**, et al., “Mini-Slot Based Access Barring Scheme for IoT Networks”, Human-centric Computing and Information Sciences (2023) 13:32 DOI:https://doi.org/10.22967/HCIS.2023.13.032 *(JCR indexed)*
3. M. Mazhar, S. Fakhar, **Y. Rehman**, “Semantic Segmentation for Various Applications: Research Contribution and Comprehensive Review”, Engineering Proceedings. 2023; 32(1):21. https://doi.org/10.3390/engproc2023032021
4. G. Nadeem, **Y. Rehman**, A. Khaliq, H. Khalid and M. I. Anis, "Artificial Intelligence based prediction system for General Medicine,"2023 4th International Conference on Computing, Mathematics and Engineering Technologies (iCoMET), Sukkur, Pakistan, 2023, pp. 1-6, doi: 10.1109/iCoMET57998.2023.10099078.

2022

5. **Y. Rehman**, H. Amanullah, M. A. Shirazi and M. Y. Kim, "Small Traffic Sign Detection in Big Images: Searching Needle in a Hay," in IEEE Access, vol. 10, pp. 18667-18680, 2022, doi: 10.1109/ACCESS.2022.3150882. *(JCR indexed)*
6. M. H. Shaikh, F. Rubab, S. Asaad and **Y. Rehman**, "Implementation of Item Management Process and Food Recognition in a Fridge using Computer Vision and IoT," 2022 International Conference on Emerging Technologies in Electronics, Computing and Communication (ICETECC), Jamshoro, Sindh, Pakistan, 2022, pp. 1-6, doi: 10.1109/ICETECC56662.2022.10069938.
7. H. Rizvi, N. Z. Qazi, T. Shakil, Asad-ur-Rehman and **Y. Rehman**, "Object Detection from 3D Point Cloud Using Deep Learning (SFM)," 2022 International Conference on Emerging Technologies in Electronics, Computing and Communication (ICETECC), Jamshoro, Sindh, Pakistan, 2022, pp. 1-10, doi: 10.1109/ICETECC56662.2022.10069939.
8. N.K.B. Noroz, Saleem, Ramesh, Saqib, **Y. Rehman**, “Finger-Vein Image Dual Contrast Adjustment and Recognition Using 2D-CNN” Vol. 6 No. 1 (2022): Vol. 6 No. 1 (2022): Sukkur IBA Journal of Computing and Mathematical Sciences-SJCMS DOI: https://doi.org/10.30537/sjcms.v6i1.1001

2021

9. D.M.S. Bhatti, **Y. Rehman**, et al.: “Machine learning based cluster formation in vehicular communication”, Telecommunication Systems (2021), Springer, https://doi.org/10.1007/s11235-021-00798-7 *(JCR indexed)*
10. S.R.N. Jafri, **Y. Rehman**, et al.: “Development of georeferenced 3D point cloud in GPS denied environments using backpack laser scanning system”, Elektronika ir Elektrotechnika (2021), http://dx.doi.org/10.5755/j02.eie.29063 *(JCR indexed)*

11. **Y. Rehman**, H. Amanullah, et al.: “Detection of small size traffic signs using regressive anchor box selection and DBL layer tweaking in YOLOv3”, Applied Sciences, MDPI (2021), https://doi.org/10.3390/app112311555 *(JCR indexed)*
12. T.H.M. Siddique, **Y. Rehman**, et al.: “3D object localization using 2D estimates for computer vision applications”, IEEE MAJICC 2021, Pakistan.

2020

13. J.A. Khan, Y. Chen, **Y. Rehman**, and H Shin: “Performance enhancement techniques for traffic sign recognition using a deep neural network”, Multimedia Tools and Application, Springer, 79 (29), 2020 *(JCR indexed)*
14. S.A. Haider, **Y. Rehman**, and S.M. Ali: “Enhanced multimodal biometric recognition based upon intrinsic hand biometrics”, Electronics, MDPI, 9(11), 2020 *(JCR indexed)*

2019

15. **Y. Rehman**, H.M. Ameem Uddin, T.H. Masood, et al: “Comparison of camera based and laser scanner based 3D point cloud”, IEEE ICETEST 2019, Pakistan.

2018

16. **Y. Rehman**, J. Khan, and H. Shin: “Efficient coarser-to-fine holistic traffic sign detection for occlusion handling”, IET Image Processing, 12 (12), 2018. *(JCR indexed)*

2017

17. **Y. Rehman**, I. Riaz, X. Fan, and H. Shin: “D-patches: effective traffic sign detection with occlusion handling”, IET Computer Vision, 11 (5), 2017. *(JCR indexed)*

2016

18. I. Riaz, T. Yu, **Y. Rehman**, and H. Shin: “Single image dehazing via reliability guided fusion”, Elsevier Journal of Visual Communication and Image Representation, 40(A), 2016. *(JCR indexed)*
19. X. Fan, I. Riaz, **Y. Rehman**, and H. Shin: “Vanishing point detection using random forest and patch-wise weighted soft voting”, IET Image Processing, 10 (11), 2016. *(JCR indexed)*
20. **Y. Rehman**, J. Khan, I. Riaz, and H. Shin: “Chunks: The remedy for notorious false alarms in pedestrian detection”, IEEE ICEIC 2016, Vietnam.

2015

21. **Y. Rehman**, I. Riaz, F. Xue, Park, J. Khan and H. Shin: “Pedestrian detection with cascaded part model for occlusion handling”, International Journal on Advances in Intelligent Systems, pp: 426-436, December 2015.
22. **Y. Rehman**, I. Riaz, X. Fan, Piao. J, J. Khan, and H. Shin: “Pedestrian detection with occlusion handling”, Patterns 2015, France. *(Best paper award)*
23. X. Fan, C. Deng, **Y. Rehman**, and H. Shin: “Fast road vanishing point detection based on modified adaptive soft voting”, Patterns 2015, France.

Other publications

24. **Y. Rehman**, G. B. Narejo and S. Zaidi: “An experiment for testing efficiency of effective teaching model and comprehensive use of limited resources”, Proceedings of IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE) 2012, Hong Kong.
25. **Y. Rehman** and F. Azim: “Comparison of different artificial neural networks for brain tumor classification via magnetic resonance images”, UKSim 14th IEEE International

Conference on Mathematical/Analytical Modelling and Computer Simulation 2012, Cambridge University England.

References

References will be provided upon request