Zahid Ullah

Chungju, South Korea

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Education

Changwon National University (CWNU) — *Changwon, Republic of Korea*

PhD in Computer Engineering — *Mar 2016 - Aug 2020*

- **Thesis Title:** An Improved Methodology for Brain MRI Image Enhancement and Classification
- **Supervisor:** Prof. Su-Hyun Lee
- **Research Interest:** Medical Image Analysis using Deep Learning, Artificial intelligence, Computer Vision, Image Processing (i.e., CT, MRI, X-rays)
- **Featured Courses:** Statistical Natural Processing, Network Design, Image Processing, System Analysis and Design, Advanced Algorithm, Advanced Distributed Multimedia Systems

Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology (SZABIST) — *Islamabad, Pakistan*

Master of Science in Computer Science — *Jan 2013 - Jun 2015*

- **Featured Courses:** Digital Image Processing, Advanced Computer Architecture, Theory of Computation, Advanced Operating System, Advanced Topics in Artificial Intelligence, Information Security, Software System Architecture

University of Malakand, (UoM) — *Khyber Pukhtunkhwa, Pakistan*

Bachelor of in Information Technology — *Sep 2007 – Dec 2011*

- **Featured Courses:** Operating Systems, C++, Discrete Mathematics, Design and Analysis of Algorithm, Network Security, Object-Oriented Programming
- **Final Year Project:** Developed a Website in PHP for Gandhara College, Chakdara

Experience

Korea National University of Transportation (KNUT) — *Chungju, Republic of Korea*

PostDoctorate Researcher — *September 2020 - Present*

- Teaching graduate courses and graduate thesis committee member.
- Conduct extensive research and development in AI and medical image processing.
- Provide supervision and guidance to master's and Ph.D. students.
- Guided interns working on deep learning-based projects.

Changwon National University (CWNU) — *Changwon, Republic of Korea*

RESEARCH Assistant — *March 2016 - June 2018*

- Development of a hybrid image enhancement based brain MRI images classification technique
- Proposed Enhanced feature extraction technique for brain MRI classification based on Haar wavelet and statistical moments
- Proposed Features Reductions Using Color Moments and Classification of Brain MRI Using K-NN
- Proposed Critical Analysis of Brain Magnetic Resonance Images Tumor Detection and Classification Techniques. (All the projects were supervised by Prof. Su-Hyun Lee)

Teaching Assistant — *Sep 2018 - June 2020*

- Managing projects - Timeline, workflow and documentation
- Performing Feasibility analysis and literature review.

Shaheen Academy — *Islamabad, Pakistan*

Lecturer of Computer Science — *Dec 2014 - Dec 2015*

Research Supervised — *KNUT, South Korea*

MS Thesis — *March 2021-Dec 2022*

- Completed in co-supervision = 01 student
- In progress = 03 students

Journal Publications

Primary Authored Publications

- **Ullah Z.**, Usman M., Jeon M. , & Gwak G. (2022). Cascade multiscale residual attention CNNs with adaptive ROI for automatic brain tumor segmentation. *Information Sciences,* ***IF: 8.2*** .
- **Ullah Z.**, Usman M. & Gwak G. (2023). MTSS-AAE: Multi-task semi-supervised adversarial autoencoding for COVID-19 detection based on chest X-ray images *Expert Systems With Applications* , 216, 2023. ***IF: 8.5***.
- **Ullah Z.**, Usman M., Latif S., & Gwak G. (2023). Densely Attention Mechanism-based Network for COVID-19 Detection in Chest X-rays. *Nature Scientific Reports*, 13, 261. ***IF: 4.9***.
- **Ullah Z.**, Usman M., Latif S., Khan A., & Gwak G. (2023). SSMD-UNet: semi-supervised multi-task decoders network for diabetic retinopathy segmentation *Scientific Reports*, 10(1), 9087. ***IF: 4.9***
- **Ullah Z.**, Farooq M U., Lee S H., & An D. (2020). A hybrid image enhancement based brain MRI images classification technique. *Medical Hypotheses*, 143, 109922. ***IF: 4.7***
- **Ullah Z.**, Fayaz M., & Lee S H. (2019). Enhanced feature extraction technique for brain MRI classification based on Haar wavelet and statistical moments, *International Journal of Advanced and Applied Sciences* 6(7), 2313. ***IF: 0.22***

Co-authored Publications

- Ahmad S., **Ullah Z.**, & Gwak J. (2024). Multi-teacher cross-modal distillation with cooperative deep supervision fusion learning for unimodal segmentation, *Knowledge-Based Systems*. ***IF: 8.8***
- Farooq M U., **Ullah Z.**, & Gwak J. (2023). DC-AAE: Dual channel adversarial autoencoder with multitask learning for KL-grade classification in knee radiographs. *Computers in Biology and Medicine.*, ***IF: 7.7***
- Farooq M U., **Ullah Z.**, & Gwak J. (2023). Residual attention based uncertainty-guided mean teacher model for semi-supervised breast masses segmentation in 2D ultrasonography. *Computerized Medical Imaging and Graphics*. ***IF: 7.4***
- Kang J., **Ullah Z.**, & Gwak J. MRI-Based Brain Tumor Classification Using Ensemble of Deep Features and Machine Learning Classifiers. *Sensors* 2021. ***IF: 3.9***

Under-review Manuscripts

- **Ullah Z.**, Masood S., & Gwak J. (2023). Full-Resolution Transformer-Based Approach for Enhanced Teeth Segmentation and Numbering. Under-review at *IEEE Transactions on Visualization and Computer Graphics (TVCG),* ***IF: 5.2*** .
- **Ullah Z.**, Masood S., & Gwak J. (2023). Tooth Instance Segmentation in Panoramic Dental Images Using Pixel-Pair Affinity Pyramid and Cascaded Graph Partitioning. Under-review at *International Journal of Medical Informatics (IJMI),* ***IF: 4.9*** .
- Ahmad S., **Ullah Z.**, & Gwak J. (2023) Multi-Teacher Cross-Modal Distillation with Cooperative Deep Supervision Fusion Learning for Unimodal Segmentation. Under-Minor Revision at *Knowledge-Based Systems,* ***IF: 8.8***
- **Ullah Z.**, Masood S., & Gwak J. (2023). FE-Net: Correlation-based 2D feature enhancement for brain tumor segmentation. Under-review at *Engineering Applications of Artificial Intelligence (EAAI),* ***IF: 8.0*** .
- Gwak J., **Ullah Z.**, Ahmad S., & Masood S. (2023) Pioneering the Path Forward: A Rigorous Analysis of Recent Developments in Transformer Models and Their Implications for the Future. Under-review at *Journal of Big Data,* ***IF: 8.1***
- Masood S., **Ullah Z.**, & Gwak J. (2023). Stabilized cross-modal distillation for monocular depth estimation. Under-review at *IEEE Transactions on Pattern Analysis and Machine Intelligence,* ***IF: 23.6*** .

Conference Publications

Published studies

- **Ullah, Z.**, & Lee, S, H. (2019). Magnetic Resonance Brain Image Contrast Enhancement Using Histogram Equalization Techniques. In Journal of the Korea Society of Computer and Information.
- Ho, TKK., Jeon, Y., Na, E., **Ullah, Z.,**, Kim, BC, Lee, KH., Song, JI., & Gwak, J. (2021, December). DeepADNet: A CNN-LSTM model for the multi-class classification of Alzheimer's disease using multichannel EEG. In 2021 DEMENTIA CARE AND PSYCHOSOCIAL FACTORS.
- Gwak, J., Kang, J., Lim, H., Min, D., & **Ullah, Z.** (2021, May). Anomaly detection system using ResUNet++-based image restoration technique. In 2021 conference of the Korean Society for Next-Generation Computing (pp. 401-403).
- Gwak, J., Kang, J., Lim, H., Kim, M., & **Ullah, Z.** (2021, May). Efficient data preprocessing method for anomaly detection based on restoration model. In 2021 conference of the Korean Society for Next-Generation Computing (pp. 375-377).

Academic Services

Reviewer of IEEE Transactions on Medical Imaging
Reviewer of Information Sciences
Reviewer of IEEE Transactions on Artificial Intelligence
Reviewer of Expert Systems with Applications
Reviewer of Medical Physics
Reviewer of Neurocomputing
Reviewer of Biomedical Signal Processing & Control
Reviewer of Multimedia Tools and Applications
Reviewer of Scientific Reports
Reviewer of Sensors MDPI

Skills & Tools

Python (Tensorflow (Keras), PyTorch, VTK), MATLAB, C, C++, Numpy, Pandas, Matplotlib, Html, PHP