

Ishaq Muhammad

M.S. (Info. & Comm. Eng.) | Focused on AI and Computer Vision

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Jiho-ro, Jisan-dong, Gwangju 61445, South Korea

Objective

A motivated master's graduate with solid expertise in computer vision, deep learning, and medical imaging. Skilled in developing advanced deep-learning models such as transformers, convolutional neural networks, and diffusion models to diverse imaging tasks. Passionate about advancing AI technologies to improve healthcare outcomes and seeking research opportunities at the intersection of AI.

Research Interests

- Computer Vision, Deep Learning, Transformer Architectures and Large Language Models
- Medical Imaging, Representation Learning, AI-driven Diagnostics, Explainable AI and AI-based Clinical Decision Support Systems

Experience

- **Chosun University** Sep 2023 – Aug 2025
Research Assistant Gwangju, South Korea
 - Worked on transformer-based architectures for medical image classification.
 - Implemented scalable models and evaluated algorithmic performance.
 - Developed PyTorch-based frameworks for bone and hip fracture detection.
 - Contributed to academic publications and interdisciplinary research.
- **University of Peshawar** Feb 2023 – Aug 2023
Research Assistant Peshawar, Pakistan
 - Developed ML models for missing data imputation in wireless sensor networks.
 - Conducted anomaly detection experiments and performance analysis.
- **REBLUE Software Company** Jun 2022 – Feb 2023
Machine Learning Intern Peshawar, Pakistan
 - Built image classification pipelines for breast cancer detection.
 - Worked on preprocessing, feature extraction, and modeling using Python and Scikit-learn.

Education

- **Chosun University** Sep 2023 – Aug 2025
Masters in Information and Communication Engineering Gwangju, South Korea
 - GPA: 4.19/4.50; Thesis: A Dual-Path Deep Learning Framework for Multi-Scale Hip Fracture Classification from X-rays
- **University of Peshawar** Oct 2018 – Aug 2022
Bachelor of Computer Science Peshawar, Pakistan
 - CGPA: 3.94/4.0 (Distinction); Thesis: Deep Reinforcement Learning using Game AI 3D Environments

Publications

C=CONFERENCE, J=JOURNAL, P=PATENT, R=IN REVISION, T=THESIS

- [J.1] Routhu Srinivasa, Ishaq Muhammad, Bumshik Lee. **Multi-level Feature Enhancement and Dual Attention Mechanisms for Improved Osteoporosis Diagnosis**. *Neurocomputing*, 2025.
- [J.2] Ishaq Muhammad et al. **BONE-Net: A Novel Hybrid Deep Learning Model for Effective Osteoporosis Detection**. *PLOS One*, 2024, accepted with minor revision.
- [C.1] Ishaq Muhammad, Bumshik Lee. **A Hybrid Attention-Driven Deep Learning Model for Osteoporosis Detection in Knees**. *ICAIIIC*, Fukuoka, Japan, 2025.
- [R.1] Ishaq Muhammad et al. **A Dual-Path Deep Learning Framework for Multi-Scale Hip Fracture Classification from X-rays**. *Engineering Applications of AI*, In revision, 2025.
- [R.2] Routhu Srinivasa and Ishaq Muhammad et al. **FTAM-Net: A Feature Transformer with Adaptive Multi-Scale Refinement Network for Osteoarthritis Classification**. *Engineering Applications of AI*, In revision, 2025.

Conference Presentations

- [1] Dual-EfficientNet Framework for Multi-Scale Gastrointestinal Disease Classification. Oral Presentation, 25-26 April 2025, *Korean Institute of Intelligent Systems, KIIS Spring Conference*, Gumi, South Korea.
- [2] A Deep Learning Approach for Effective Osteoporosis Detection in Knees. Poster Presentation, 17-18 October 2024, *The 34th Artificial Intelligence Signal Processing Conference*, Seoul, South Korea.
- [3] Classification of Bone Abnormalities in MURA. Oral Presentation, 19-22 June 2024, *Korea Institute of Communications and Information Sciences, KICS Summer Conference*, Jeju-Du, South Korea.
- [4] Medical Image Segmentation using Diffusion Models. Oral Presentation, 19-21 April 2024, *Korea Institute of Intelligent Systems, KIIS Spring Conference*, Seoul, South Korea.

Skills

- **Programming Languages:** Python, C++, C
- **Frameworks & Tools:** PyTorch, TensorFlow, Huggingface, timm, OpenCV, NumPy, Scikit-learn, CUDA, Jupyter Notebook
- **Specialized Area:** Medical Imaging, Deep Learning, Computer Vision, Transformers, Diffusion Models
- **Research Skills:** Experimental Design, Scientific Writing, Benchmarking, Data Visualization, Strong Written and Communication Skills

Honors and Awards

- **Chosun University Foreign Excellence Scholarship** *Sep 2023 – Aug 2025*
Chosun University Gwangju, South Korea
- **Best Paper Award** *2024*
IEIE 34th AI Conference, Seoul, South Korea
- **Distinction Certificate for Highest CGPA** *2022*
University of Peshawar, Pakistan
- **Inter Semester AI Quiz Distinction Certificate** *2022*
University of Peshawar, Pakistan

Additional Information

Languages: English (Fluent), Urdu (Native), Pashto (Native)

Interests: Sports, Music, Reading

References

1. **Dr. Arif Ullah**
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Former Assistant Professor, Dept. of Info.
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arifkhaan.github.io
2. **Dr. Routhu Srinivasa Rao**
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Associate Professor, Dept of CSE, GITAM University, India
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