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 hands-on expertise in computer vision, deep learning, and medical imaging. Skilled in developing advanced deep-learning models using transformers, convolutional neural networks, and diffusion models to diverse imaging tasks. Passionate about advancing AI technologies to improve real-world impact and seeking research opportunities at the intersection of AI.

Research Interests

- Computer Vision, Deep Learning, Transformers, Diffusion Models, Large Language Models, and Multimodal Foundation Models
- Medical Imaging, Representation Learning, AI-driven Diagnostics, Explainable AI and AI-based 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*, 2025.

[**C.1**] Ishaq Muhammad and Bumshik Lee. **A Hybrid Attention-Driven Deep Learning Model for Osteoporosis Detection in Knees**. *ICAIIC*, 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**. *Applied Soft Computing*, In revision, 2025.

Conference Papers Presentations

[1] Ishaq Muhammad and Bumshik Lee, "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] Ishaq Muhammad and Bumshik Lee, "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] Ishaq Muhammad and Bumshik Lee. "Classification of Bone Abnormalities in MURA." Oral Presentation, 19–22 June 2024, *Korea Institute of Communications and Information Sciences (KICS) Summer Conference*, Jeju-do, South Korea.

[4] Ishaq Muhammad and Bumshik Lee, "Medical Image Segmentation using Diffusion Models." Oral Presentation, 19–21 April 2024, *Korean 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 Communciation Skills

Honors and Awards

- **Chosun University Foreign Excellence Scholarship** *Sep 2023 – Aug 2025*
  Chosun Universit 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**
   Research Fellow, Queen's University Belfast, UK
   Former Assistant Professor, Dept. of Info. and Comm. Eng., Chosun University
   Email: a.ullah@qub.ac.uk
   arifkhaan.github.io

2. **Dr. Routhu Srinivasa Rao**
   Postdoctoral Researcher, Chosun University
   Associate Professor, Dept of CSE, GITAM University, India
   Email: routh.srinivas@chosun.ac.kr
   Google Scholar