NAIM REZA

Graduate Research Assistant
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Career Objective

Pursue and contribute to research focused on explainability, security, and optimization for deep learning in computer vision, particularly in biometric and healthcare applications. My goal is to develop secure, robust, and transparent AI systems that are resource-efficient and deployable in edge devices.

Research Interests

Computer Vision; Robust & Explainable Deep Learning; Biometric Presentation Attack Detection; Model Optimization and Regularization; Efficient Learning under Data/Compute Constraints.

Education

M.Sc. in Computer Engineering — *Chosun University, Gwangju, South Korea* Sep 2022–Aug 2024
CGPA: 4.35/4.50

B.Sc. in Electrical & Electronic Engineering — *University of Dhaka, Bangladesh* Mar 2016–Jul 2021
CGPA: 3.61/4.00

Publications (Journal)

– **N. Reza**, H. Y. Jung, "Cross-sensor Generalization for Fingerprint Presentation Attack Detection Leveraging Local Feature Enhancement," *IEEE Transactions on Biometrics, Behavior, and Identity Science*, Early Access, 2025. DOI: 10.1109/TBIOM.2025.3590827.

– **N. Reza**, H. Y. Jung, "Re-calibrating Network by Refining Initial Features through Generative Gradient Regularization," *IEEE Access*, vol. 13, pp. 20191–20202, 2025. DOI: 10.1109/ACCESS.2025.3534216.

– M. Al Amin, **N. Reza**, H. Y. Jung, "Lightweight Network for Spoof Fingerprint Detection by Attention-Aggregated Receptive Field-Wise Feature," *Electronics*, vol. 14, no. 9, 2025. DOI: 10.3390/electronics14091823.

– **N. Reza**, H. Y. Jung, "Enhancing Ensemble Learning Using Explainable CNN for Spoof Fingerprints," *Sensors*, vol. 24, no. 1, 2024. DOI: 10.3390/s24010187.

Research Experience

Graduate Research Assistant, Computer Vision Lab, Chosun University Sep 2022–Present

– **Explainability-Guided Optimization:** Developed generative-gradient regularization to refine early-layer features, increasing feature variance and improving downstream accuracy across diverse backbones.
– **Fingerprint PAD (Cross-Sensor/Material):** Proposed sensor scaling, liveness-score guided local enhancement, and receptive-field-wise error calculation to improve generalization and mitigate overfitting in low-data regimes.
– **Efficient PAD Architectures:** Designed attention-aggregated lightweight networks balancing accuracy and computational cost for edge deployment.

Selected Projects

Face Recognition Vendor Test (FRVT)
Implemented metric-learning pipeline for large-scale face verification to enhance discriminability and robustness via designing a siamese network and training criterion.
Emergency Delivery System using UAV
Built autonomous UAV-based delivery platform; recognized with *"Best Institute for Innovation"* award (2019).

Industry Experience

Software Engineer, Celloscope-BD (FinTech), Dhaka, Bangladesh Sep 2021–Aug 2022

– Designed and deployed microservice architectures for scalable backend services.
– Instructed boot-camp cohorts on backend API development and deployment best practices.

Awards & Leadership

– Foreign Excellence Scholarship, Chosun University (2022–2024).
– President & Founding Member, FEC Scientific Research & Robotics Association (2018–2021).
– President, FEC Cultural Club (2017–2019).
– "Best Institute for Innovation" Award (2019) for UAV project.

Skills

Programming: Python, C/C++, Java, JavaScript, PHP
DL/ML: PyTorch, TensorFlow, Keras, NumPy, Pandas, scikit-learn, OpenCV
Dev Tools: Git, Docker
Web/Backend: Spring Boot, React, Next.js, React Native
Paradigms: Reactive, Functional, Event-Driven, TDD, Clean Architecture

Language Proficiency

IELTS: Overall Band Score: 7.5
– Listening: 7.5
– Reading: 7.5
– Writing: 6.0
– Speaking: 8.0

References

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Western Gateway Building, Cork, Ireland.
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