Yechan Choi

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Research Interests

Nano-Bio Robotics, Wearable Robotics, Computer Vision

Education

Seoul National University Mar. 2021 –
B.S. in Mechanical Engineering *Seoul, Republic of Korea*
Leave of absence for military service (May. 2022 – Feb. 2024)

Research Experience

Multiscale Biomedical Engineering Laboratory, Seoul National University Aug. 2024 - Present
Advisor: Professor Noo-Li Jeon
Co-Advisor: Professor Sangyoon Han at Michigan Tech

3D Traction Force Microscopy using Physics Informed Neural Network

- Solving ill-posed problem with Neural Network.
- Simulated cellular migration and angiogenesis as force vector fields within biological tissue.

Project

AR-Navi Jun. 2024 – Dec. 2024
Team Lead

An AR-based smart helmet navigation system for motorcycles using dual-lens optics and transparent reflectors.

- Designed and implemented core components including AR display, Android Auto-based button controller, and Bluetooth-based communication module.

AegisAI Feb. 2023 – Nov. 2023
Team Lead

Discriminating Generative Visual/Auditorial Data

- Pioneered a fully automated end-to-end pipeline that outperforms traditional forensic methods, by developing a custom ensemble model combining preprocessing functions and neural networks.
- Received an LOI (Letter of Intent) ranging from 200 million to 1 billion KRW from Ideabridge Partners

Honors & Awards

- **1st Prize**, Undergraduate Mechatronics Competition, Dec. 2024
  Seoul National University, HD Hyundai
- **1st Prize**, Ministry of National Defense Startup Competition, Aug. 2023
  Ministry of National Defense
- **2nd Prize**, Airforce Startup Competition, Jun. 2023
  Republic of Korea Airforce
- **1st Prize**, Nuclear Creativity Contest, Nov. 2019
  Ministry of Science and ICT

Skills

- **CAD Design** Fusion 360
- **Statistics** R
- **Programming Languages** Python, MATLAB, C/C++
- **Software Libraries** PyTorch, Tensorflow
- **Laboratory Tools** Confocal microscopy, 3D Printing, Cell Culture