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Summary

Senior ML/CV Research Engineer: graduated from the University of Soongsil's Department of Computer Science and Engineering, specializing in Artificial Intelligence, with a particular focus on industry-grade AI solutions using Computer Vision, with over 5 years of extensive experience heavily focused on deep learning. I have developed proficiency in ML/DL, leveraging frameworks like PyTorch, TensorFlow, and Scikit-Learn in various practical projects and research initiatives. I am actively seeking AI Research Engineer positions where I can contribute to innovative projects.

Work Experience

DeltaX

Seoul, South Korea

Team Leader | Senior AI Researcher & Engineer

Sept 2021 - Present

- Designed, developed, optimized and deployed **over 15+ SOTA deep learning models** to end-to-end perception pipelines for **Smart Cabin Monitoring System (SCMS), Driver Monitoring System (DMS), Occupation Monitoring System (OMS)**, led a team of researchers and managed the Hyundai Mobis, Edison Motors's autonomous vehicles projects with diverse solutions: **Drowsiness, Driver Distraction, Driver Behaviour, Face ID, Head Pose Estimation, Hands on the Steering Wheel, Occupancy Detection, Seat-belt Detection, Left-item Detection, Child Detection, Age, Gender, Emotion, Gesture Recognition, and Depth Estimation**, achieving significant improvements in system accuracy by 18% and efficiency by 4x reduction in the model sizes, and by 2x times faster inference speed through optimization and quantization to make compatible models with embedded devices.
- Successfully participated in the **Ninth NTIRE 2024 Efficient Super-Resolution Challenge**, securing a place among the top 30 competitors in a field of 256 registered participants, focusing on innovating efficient single-image super-resolution techniques.
- Successfully engineered and implemented an **optimized model inference pipeline** with achieving real-time inference speed by 30 FPS, serving as a pivotal element for the proof-of-concept (POC) showcase in the Smart Cabin Monitoring System initiative.
- Developed light deep learning models to enable **real-time Object Detection, Segmentation, Tracking, and Distance Estimation** using multiple cameras, resulting in significantly improved accuracy and efficiency.
- Developed a high-performance, **ultra-lightweight Deepfake Detection** model using the SSL principle. Achieved state-of-the-art results with an AUC over 90% across various datasets, with efficient inference times and low power consumption for low-capacity CPU environments.
- Designed, developed, and optimized relational **databases for SK oil company** with over 2 billion of data, supporting the data storage needs, managing diverse data including prices, oil types, and client information, with periodic summaries of valuable information.
- Led a sophisticated **web crawling** project focused on art-related data aggregation, successfully processing over 10 million instances from diverse sources. Handled complex parsing of various art items, their transformation into a standardized form, data cleaning, and structuring, which significantly increased the integrity and accessibility of data for the further development of the art recommendation system.

Soongsil University Laboratory

Seoul, South Korea

AI Researcher & Engineer

Sept 2018 - Feb 2021

- Developed an **"Active Aging Advisory System"** — a software for aging diagnosing and treatment recommendations. I was responsible for developing functionality for face detection and age prediction by aging features like wrinkles and age spots.
- Developed a **"BOK Assessment Service (BOKAS) System"** — a cloud service for conducting interview tests on technology courses. The project contained the development of functionality for managing data like courses, authors, problems, solutions, etc.
- Developed a **"Recommender System Based on Data Fading"** — the last project (Thesis) that focused on research for improving the recommender system performance through cleaning the dataset from noise and faded data.
- Obtained Skills:** solid Artificial Intelligence Background, Programming Skills, Data Mining, Mathematics Background, Teamwork, Time Management, Communication, Presentation skills, Logical Thinking, Critical Thinking.

Skills

AI Frameworks

PyTorch • TensorFlow • Keras • Scikit-learn

Areas of Expertise

Image Processing • Recognition • Detection • Segmentation • Generative Models • Action Recognition • Depth Estimation • Anomaly Detection • Model Optimization • Quantisation • Pruning • Knowledge Distillation • etc.

Programming

Python (expert) • C# • Web Development (HTML, CSS, JavaScript) • Database Development (SQL, Oracle)

Libraries

OpenCV • NumPy • Pandas • PIL • Matplotlib • Docker • FFmpeg • Dlib • Scikit-image • ONNX • TensorRT • etc.

Miscellaneous

Windows, Linux, WSL, SSH, PyCharm, VS Code, Jupyter Notebook, Microsoft Office, GitHub, LaTeX, ChatGPT, etc.

Soft Skills

Project Management, Teamwork, Communication, Problem-solving, Adaptive to New Technologies, Technical Writing.

Languages

English (Professional) • Korean (Elementary) • Russian (Native) • Ukrainian (Native)

Education

Soongsil University
MSc in Computer Science and Engineering

Seoul, South Korea
Sept 2018 - Feb 2021

- **GPA:** 4.24/4.5 or 95.5/100 scores
- **Courses:** Artificial Intelligence, Machine Learning, Deep Learning, Data Science, Data Mining, Statistical Learning, Statistical Theory and Methods, Software Engineering, Software Architecture, Internet of Things, Mobile Communications.

Achievements

2018	Level 4 , TOPIK (Test of Proficiency in Korean)	South Korea
2017	Scholarship , NIIED - Korean Government Scholarship Program (1-st place representative student of Ukraine)	South Korea
2016	Red Diploma , Bachelor's Degree, Computer Science and Engineering	Ukraine
2012	Red Diploma , Lyceum (High School), Information Technologies	Ukraine