Jiun Bae

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Driven machine learning enthusiast specializing in natural language processing and computer vision, committed to solving real-world problems through data-driven innovation.

EXPERIENCE

NCSOFT — Graphics AI Lab.
Machine Learning Researcher — Feb. 2021 –Present

- Spearheaded the implementation of preprocessing and alignment pipelines for high-fidelity motion and facial capture data, significantly enhancing data quality.
- Pioneered the development of a PyTorch-based framework for deep learning model training and experiment management, substantially boosting team productivity and streamlining research processes.
- Led the research on a deep learning model for generating speech-based 3D facial animation, contributing to advancements in digital human technology.
- Architected a real-time, responsive facial expression generation model and systems for digital humans.
- Designed and developed scalable services and systems for deploying experimental models internally.

Naver Clova — Research
Machine Learning Engineer, Intern — Jul. 2020 – Aug. 2020

- Contributed to the development of a sophisticated depth estimation network for 3D map reconstruction.

Naver Webtoon — Research
Machine Learning Researcher, Intern — Sep. 2018 – Feb. 2019

- Developed an advanced annotation tool for 2D bounding box support, integrating features such as live data model inference, dataset management with custom query types, and various tagging options.
- Designed the Visual QA task for Workshop, developing a multi-modal network and dataset for its validation.

SW Maestro — 7th
Mentee, Awarded Top Team — Jul. 2017 – Aug. 2018

- Engineered DeepCheck, a pioneering face-detection based attendance checking service.
- Developed Memento, an innovative service for automatic magazine creation.
- Garnered acclaim as a top team, showcased at the "100+ Conference" by the Ministry of Science and ICT, highlighting exceptional project development and execution.

EDUCATION

Hanyang University — Seoul, Korea
M.S. in Computer Science, Advisor: Jongwoo Lim — Mar. 2019 – Feb. 2021

Hanyang University — Seoul, Korea
B.S. in Computer Science — Mar. 2015 – Feb. 2019

Yonsei University (Mirae Campus) — Wonju, Korea
B.S. in Computer Engineering, Withdrawal — Mar. 2014 – Aug. 2014

PUBLICATIONS

[0] **Jiun Bae** and Jongwoo Lim. "**Object detection in fisheye lens environment**". In: *Image Processing and Image Understanding* 32nd Workshop (2020).

[0] Gitaek Kwon, **Jiun Bae**, and Jongwoo Lim. "**Object counting using object detection and re-identification in video sequence**". In: *Image Processing and Image Understanding* 32nd Workshop (2020).

[0] Jongbin Ryu, **Jiun Bae**, and Jongwoo Lim. "**Collaborative Training of Balanced Random Forests for Open Set Domain Adaptation**". In: *CoRR* abs/2002.03642 (2020). arXiv: 2002.03642.

Projects

- Digital Human Project   NCSOFT, Feb. 2022 – Present
    - Led the development of a real-time and responsive facial expression generation model and system for digital humans.
    - Pioneered the generation of dynamic facial expressions and persona integration in conversational scenarios, enhancing digital human interactivity.
    - Orchestrated the creation of highly detailed facial animations, capturing nuanced expressions tailored to unique character traits.
    - Architected a high-performance API server, optimizing it for diverse inputs in facial animation generation, ensuring scalability and robustness.

- 3D Facial Animation Generation Model Research   NCSOFT, Feb. 2021 – Jan. 2022
    - Implemented advanced preprocessing and alignment pipelines for superior motion and facial capture data quality.
    - Devised and deployed a PyTorch-based framework for deep learning model training, elevating team productivity and streamlining research management.
    - Conducted innovative research on deep learning models for speech-driven 3D facial animation generation.

- Webtoon Annotation Tool   Naver Webtoon, Sep. 2018 – Feb. 2019
    - Engineered advanced annotation tools for efficient collection of domain-specific raw data.
    - Developed a sophisticated analysis tool for cross-validating annotations, enabling comprehensive tracking of productivity, task difficulty assessment, and model inference comparison.

- MariaDB Scalable Lock Manager   ITE4065 at Hanyang University, Dec. 2017
    - Enhanced the InnoDB storage engine's performance by replacing a lock-free design and reusable object pool for the global lock mechanism in the transaction record manager.

- Memento: All Information About That Person   SW Maestro, Apr. 2017 – Oct. 2017
    - Created a robust, scalable crawling system to aggregate a wide array of articles and information.
    - Designed a sophisticated system for vector embedding and clustering, linking information to entities and events, while allowing for continuous vector expansion.

- DeepCheck: Deep Learning-Based Auto Face Recognition Attendance Check   SW Maestro, Sep. 2016 – Dec. 2016
    - Enhanced a face recognition model specifically for low-resolution, crowded environments.
    - Developed a cross-platform application and API server using React Native, enabling efficient, lightweight model inference.

Scholarships and Awards

- ACM-ICPC Asia Daejeon Regional Contest 16th place   2016
- Top start-up certification SW Maestro 7th   2017
- Google Machine Learning Challenge Korea 5th place   2017

Other Experience and Activites

- **Teaching Assistant**, Advanced Computer Vision   2019 – 2020
    - Basic programming knowledge and how to use the library.
    - Deep learning basics and model implementation from scratch with numpy.
    - Implementation of Object Classification, Detection, and Tracking.
    - At **Samsung System LSI**, **Samsung Advanced Institute of Technology** and **Samsung Human Resource Development Institute**.