Jiun Bae

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Interested in machine learning such as natural language processing and computer vision, aspiring to address real-world issues by leveraging actual data.

EXPERIENCE

NCSOFT   Graphics AI Lab.
Machine Learning Research, Technical Research Personnel   Feb. 2021 –Present

- Implemented preprocessing and alignment pipelines for high-quality motion and facial capture data.
- Developed and implemented a PyTorch-based framework for deep learning model training and experiment management, boosting team productivity and facilitating research management.
- Researched a deep learning model for speech-based 3D facial animation generation.
- Development of a real-time and responsive facial expression generation model and system for digital humans.
- Designing and developing a scalable service and system for deployment of internal experimental models.

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

- Worked on developing a depth estimation network for 3D map reconstruction.

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

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

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

- Developed DeepCheck, a face detection attendance check service.
- Developed Memento, an automatic magazine creation service.
- Received recognition as top teams presented at the "100+ Conference" hosted by the Ministry of Science and ICT.

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

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

[2] 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).

[3] 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
  - Development of a real-time and responsive facial expression generation model and system for digital humans.
  - Generating appropriate facial expressions and applying personas in conversation scenarios.
  - Creating facial animations tailored to specific characteristics through high-quality facial animation capture.
  - Designing and developing a high-performance api server to accommodate various inputs for facial animation generation.

- 3D Facial animation generation model research   NCSOFT, Feb. 2021 – Jan. 2022
  - Implemented preprocessing and alignment pipelines for high-quality motion and facial capture data.
  - Developed and implemented a PyTorch-based framework for deep learning model training and experiment management, boosting team productivity and facilitating research management.
  - Researched a deep learning model for speech-based 3D facial animation generation.

- Webtoon Annotation Tool   Naver Webtoon, Sep. 2018 – Feb. 2019
  - Designed and developed annotation tools for on-demand collection of raw data from new domains.
  - Created an analysis tool to cross-validate annotations, track productivity, assess task difficulty, and compare model inference results.

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

- Memento: all information about that person   SW Maestro, Apr. 2017 – Oct. 2017
  - Developed a scalable crawling system for gathering a multitude of articles and information.
  - Design system for vector embedding and clustering to associate information with entities and events, allowing for the addition of new vectors over time.

- DeepCheck: Deep learning-based auto face recognition attendance check   SW Maestro, Sep. 2016 – Dec. 2016
  - Enhanced face recognition model for low-resolution crowded environments.
  - Developed a cross-platform app and API server for lightweight model inference using React Native.

SCHOLARSHIPS AND AWARDS

- ACM ICPC 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**.