Sihwa Park

sihwapark@korea.ac.kr
https://sihwa-park.github.io/
Seoul, South Korea

Education

Korea University Seoul, South Korea

Master of Computer Science (Advised by Prof. Seungjun Baek) GPA: 4.0/4.0 2021 Sep – 2023 Aug

- Thesis title: 3D Teeth Reconstruction from Panoramic Radiographs using Neural Implicit Functions

Korea University Seoul, South Korea

Bachelor of Computer Science (Double major in Mathematics) GPA: 3.6/4.0 2015 Mar – 2021 Aug

- Exchange program at the **University of Toronto** for 2019 Fall - 2020 Spring semesters

Publications

- NeBLa: Neural Beer-Lambert for 3D Reconstruction of Oral Structures from Panoramic Radiographs (https://arxiv.org/abs/2304.04027)

  ***Sihwa Park**, SeongJun Kim, Doeyoung Kwon, Yohan Jang, In-Seok Song, and Seungjun Baek*

  *Accepted in the 38th AAAI Conference on Artificial Intelligence **(AAAI) 2024***

- 3D Teeth Reconstruction from Panoramic Radiographs using Neural Implicit Functions (https://arxiv.org/abs/2311.16524)

  ***Sihwa Park**, SeongJun Kim, In-Seok Song, and Seungjun Baek*

  *Accepted in the International Conference on Medical Image Computing and Computer Assisted Intervention **(MICCAI) 2023 (Top 14% Paper)***

Research Experience

System Intelligence Group (Lab of Prof. Seungjun Baek) Korea University

Researcher 2021 Sep – Present

- Led two 3D teeth construction projects, yielding two research papers, and managed the whole process including data preprocessing, ideation, experimentation, and paper writing as a project leader.
- Project 1: Designed a neural implicit function-based approach for teeth reconstruction, distinguishing it from previous encoder-decoder methods by its adaptability to data of any resolution.
- Project 2: Adapted NeRF's ray-based approach to panoramic X-ray for 3D teeth reconstruction. Leveraged the panoramic nature of X-ray images and changed the problem to a multi-view problem.

Data Mining & Information Systems Lab (Lab of Prof. Jaewoo Kang) Korea University

Student Researcher 2018 Mar – 2019 Mar

- Contributed to a project involving Alzheimer patients dataset, focusing on data preprocessing and running baseline models. Developed a proficient ability for research programming using PyTorch.

Work Experience

Pluscope Seoul, South Korea

Software Engineer 2021 Jan – Present

- Developed an open-content platform (adducate.net) for primary education for students and vulnerable populations in developing countries including Rwanda and Bangladesh. Now used in more than 250 regions and 80 countries.

Withcat Software Seoul, South Korea

Deep Learning Engineer 2020 Apr – 2021 Aug

- Developed APIs for face detection and recognition for Korea Defence Intelligence Command (KDIC) using PyTorch and Flask

Teaching

Digital Finance Engineering Major Freshmen Summer Program Korea University

Lecturer 2022/2023 Aug

- Taught essential calculus, linear algebra, and statistics for Digital Finance Engineering major freshmen students in a 4-week program

Probability & Statistics Korea University

Teaching Assistant 2022/2023 Aug

Convex Optimization Korea University

Teaching Assistant 2022/2023 Mar

Patent

- Device and Method for 3D Teeth Reconstruction from Panoramic Radiographs using Neural Implicit Functions - Seungjun Baek, **Sihwa Park**, In-Seok Song, Seongjun Kim (Korea Application Number: 10-2023-0048579)

Skills

- Server Management: Proficient in Docker and Kubernetes, responsible for lab server administration.
- Machine Learning & Web Programming: Python, Pytorch, Matlab, PHP, JAVA
- Languages: Fluent in both Korean and English.

Honors and awards

- DAELIM SU-AM Scholarship (2016-2019): Full undergraduate scholarship recipient
- OK Bae & Jung Scholarship (2018/2019): A living expense scholarship for high-performing students.
- KU Pride Club Scholarship (2019): A full scholarship for exchange students, covering flights and living expenses.
- Undergraduate Graduation Project Competition (2019): Awarded the Bronze Medal based on the project worked as a student researcher.
- Graduate Scholarships (2021/2022): Research and teaching assistant scholarships