Han Wu | Curriculum Vitae

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EDUCATION

ShanghaiTech University   **Shanghai, China**
M.S. in Computer Science   *Sept. 2022 - Present*

- Supervisors: Prof. Zhiming Cui, Prof. Dinggang Shen

Wuhan University of Technology   **Wuhan, China**
B.E. in Information Engineering   *Sept. 2018 - June, 2022*

- Supervisors: Dr. Yiying Wei

RESEARCH EXPERIENCE

Vertebra Localization and Identification from CT Scans   **June 2022 - Apr. 2023**
ShanghaiTech University

- Motivation: To accurately localize and identify the vertebra from CT scans with sequential and global information without the large computation.
- Method: Introduce DRR to transform a complicated 3D labeling task into a set of 2D tasks where a 2D DRR projection image can be fed into networks for global information without cropping. The proposed Sequence Loss further captures sequential information as extra supervision. A novel multi-view fusion method is introduced to map the 2D results back to 3D. The results outperform the SOTA methods in localization and identification with just two 2D networks.

Condyle Remodeling Evaluation   **Oct. 2022 - Dec. 2022**
ShanghaiTech University

- Motivation: Provide a fast and efficient solution for condyle remodeling evaluation after orthognathic surgery with intuitive assisted information.
- Method: Get the condyle in a localization-segmentation way from the mandible. Final condyle remodeling evaluation is achieved by registering the segmented condyle before and after the surgery using the target RoIs as a reference. To the best of our knowledge, this is the first fully-automated method for condyle remodeling evaluation, which could be finished within 30 seconds.

Real-Time Garbage Detection   **Dec. 2020 - June 2021**
Wuhan University of Technology

- Motivation: Provide a real-time and offline deployment strategy for multi-class garbage detection on edge computing equipment.
- Method: Propose MobilenetV3_lite based on MobilenetV3 as the backbone of YOLOV3. The model is later pruned and deployed on an NVIDIA JETSON NANO with TensorRT for acceleration. The final FPS of our deployment strategy is 16, which outperforms other detection models. Our team achieved 1st prize in the preliminaries of the 2021 Undergraduate Engineering Practice and Innovation Competition of Hubei Province and further won the 2nd national prize in the later national tournament with a much more complicated task.

Crowd Counting with Mixed Labeled Dataset   **Mar. 2020 - July 2020**
Wuhan University of Technology

- Motivation: Develop a high-accuracy crowd-counting method with a large range of density across various datasets with different annotations.
- Method: Propose a coarse box-to-point strategy to transform different annotations. Then a heatmap regression model and a dual-detector(head and body) are trained and used for inference with MLPs as extra ensemble learning modules for the final predictions. Our method provides an excellent result with a prediction error of 11.1% and is ranked 3/218(Top 1.4%) in the tournament.

PUBLICATIONS

- **CLIP in Medical Imaging: A Comprehensive Survey**
  Zihao Zhao*, Yuxiao Liu*, **Han Wu***, Yonghao Li, Sheng Wang, Lin Teng, Disheng Liu, Zhiming Cui, Qian Wang, Dinggang Shen
  arXiv preprint, 2023.
- **Multi-View Vertebra Localization and Identification from CT Images**
  Han Wu, Jiadong Zhang, Yu Fang, Zhentao Liu, Nizhuan Wang, Zhiming Cui, Dinggang Shen
  *International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2023.*
- **Geometry-Aware Attenuation Field Learning for Sparse-View CBCT Reconstruction**
  Zhentao Liu, Yu fang, Changjian Li, **Han Wu**, Yuan Liu, Zhiming Cui, Dinggang Shen
  arXiv preprint, 2023.

AWARDS AND ACHIEVEMENTS

- **Outstanding Student**, ShanghaiTech, 2023.
- **Outstanding Graduates**, of WUT, 2022.
- **Outstanding Graduation Thesis**, of WUT, 2022.
- **2nd National Prize**, of National Undergraduate Engineering Practice and Innovation Competition, 2021.
- **3rd National Prize**, of 10th "China Software Cup" College Student Software Design Competition, 2021.
- **1st Prize**, of Undergraduate Engineering Practice and Innovation Competition, Hubei Prov., 2021.
- **3rd Prize**, of National University Student Intelligent Car Race, Hubei Prov. 2021.
- **3rd Prize**, of National Undergraduate Computer Design Competition, Hubei Prov., 2021.
- **Ranked 27/169**, in the 10th "China Software Cup" College Student Software Design Competition online contest 2021.
- **3rd Prize**, of The 6th "Internet+" Innovation and Entrepreneurship Competition, Hubei Prov. 2020.
- **Ranked 3/218**, in National University Student Intelligent Car Race Online Tournament: Crowd Counting 2020.
- **Ranked 15/332**, in Baidu AIStudio Regular Season of Bugs Detection 2020.

SERVICES

Conference Reviewer
- International Conference on Machine Learning in Medical Imaging (MLMI), 2023
- International Conference on Machine Learning in Medical Imaging (MLMI), 2022
- International Conference on Pattern Recognition (ICPR), 2022

Journal Reviewer
- IEEE Transactions on Biomedical Engineering (TBME)

Membership
- Student Member of China Computer Federation (CCF)
- Student Member of Chinese Society of Biomedical Engineering (CSBME)

Teaching Assistant
- BME2113 Algorithms Design And Analysis (Python) @ ShanghaiTech, 2023 Fall

Other Services
- BaiDu PaddlePaddle Developer Expert (PPDE)

KEY SKILLS

Language	Chinese(native), English(Fluent, CET-6: 593)
Programming	Python, Matlab, Java, SQL, HTML/CSS
Research Tool	PyTorch, ITK-SNAP, LaTeX, Notion, 3D Slicer, Git

Last Updated: 2023-12-15