**Juncheng WU**

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**EDUCATION**

**Tongji University** 09/2020-06/2024

Bachelor’s Degree in Computer Science and Technology

* **Overall GPA**: 3.97/4.00.

**University of California, Santa Cruz** 06/2024-Present

Ph.D Student in Computer Science and Engineering

**RESEARCH INTEREST**

Foundation models, Large language models, Vision-language models, Generative AI for healthcare

**PUBLICATIONS**

**EpiFoundation: A Foundation Model for Single-Cell ATAC-seq via Peak-to-Gene Alignment**

**Juncheng Wu,** Changxin Wan, Zhicheng Ji, Yuyin Zhou, Wenpin Hou.

In Submission to the Forty-Second International Conference on Machine Learning **(ICML 2025).**

**DDR: Exploiting Deep Degradation Response as Flexible Image Descriptor**

**Juncheng Wu**, Zhangkai Ni, Hanli Wang, Wenhan Yang, Yuyin Zhou, Shiqi Wang.

Accepted to the Thirty-Eighth Annual Conference on Neural Information Processing Systems **(NeurIPS 2024)**.

**A Preliminary Study of o1 in Medicine: Are We Closer to an AI Doctor?**

Yunfei Xie\*, **Juncheng** **Wu\***, Haoqin Tu\*, Siwei Yang\*, Bingchen Zhao, Yongshuo Zong, Qiao Jin, Cihang Xie, Yuyin Zhou.

arXiv preprint.

**MedTrinity-25M: A Large-scale Multimodal Dataset with Multigranular Annotations for Medicine**

Yunfei Xie\*, Ce Zhou\*, Lang Gao\*, **Juncheng Wu**\*, Xianhang Li, Hong-Yu Zhou, Sheng Liu, Lei Xing, James Zou, Cihang Xie, Yuyin Zhou

Accepted to the Thirteenth International Conference on Learning Representations **(ICLR 2025).**

**Restorer: Removing Multi-Degradation with All-Axis Attention and Prompt Guidance**

Jiawei Mao, **Juncheng Wu**, Yuyin Zhou, Xuesong Yin, Yuanqi Chang.

In Submission to the Forty-Second International Conference on Machine Learning **(ICML 2025).**

**Misalignment-Robust Frequency Distribution Loss for Image Transformation**

Zhangkai Ni, **Juncheng Wu**, Zian Wang, Wenhan Yang, Hanli Wang, Lin Ma

Accepted to the IEEE/CVF Conference on Computer Vision and Pattern Recognition 2024 **(CVPR 2024).**

**RESEARCH EXPERIENCES**

**Real-world Low-level Vision -** *Project Leader, Supervisor: Zhangkai Ni and Yuyin Zhou*  10/2022-08/2024

* Worked on **building metrics and models for real-world low-level computer vision tasks.**
* Designed and implemented **multi-modal** algorithms for low-level vision.
* One paper accepted by **CVPR 2024.**
* One paper accepted by **NeurIPS 2024.**

**Foundation Model for Biomedical**- *Key Participant,, Supervisor: Yuyin Zhou*  04/2024-Present

* Worked on **benchmarks for biomedical foundation models.**
* Proposed a pipeline to generate multigranular annotations for unpaired medical image.
* Benchmarked performance of Large Language Models (LLMs) as biomedical foundation models.
* One papers accepted by **ICLR 2025.**

**Foundation Model for single cell ATAC-seq**- *Project Leader, Supervisor: Yuyin Zhou*  08/2024-Present

* Worked on **foundation model for single-cell assay for transposase-accessible chromatin (sc-ATAC).**
* Designed an unsupervised training framework for single cell ATAC-seq.
* One papers in submission to **ICML 2025.**

**Medical Reasoning Dataset**- *Project Leader, Supervisor: Yuyin Zhou*  01/2025-Present

* Worked on **generation of high-quality medical reasoning path.**
* Designed data generation pipeline by utilizing agent system to distill expertise knowledge from pre-built Knowledge Graph (KG).
* Model (based on Llama3-8B) fine-tuned on proposed dataset achieves **comparable performance to openai o3-mini.**

**Medical Reasoning Benchmark**- *Project Leader, Supervisor: Yuyin Zhou*  02/2025-Present

* Step-by-step evaluated reasoning LLMs on challenging clinical datasets, **encompassing training-objective, data filtering, and test-time scaling dimensions**.
* Designed evaluation pipeline, including each evaluating dimension, step-by-step metrics.

**ACADEMIC SERVICES**

Reviewer for NeurIPS 2024, ICLR 2025, AISTATS 2025, ICML 2025