Han Yang

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Education

University of Pennsylvania Aug. 2023 - Dec. 2023
Exchange in School of Engineering and Applied Science *PA, USA*

- Cumulative GPA: **4.000**/ 4.000
- Advanced Courses:
  Computer Graphics; Natural Language Processing; Applied Machine Learning

The Chinese University of Hong Kong (CUHK) Sep. 2021 - Present
B.Sc. in Computer Science *Hong Kong SAR, China*

- Cumulative GPA: **3.899**/ 4.000
- TOEFL iBT: 106/120
- Honors and Awards:
  Yasumoto International Exchange Scholarship (2023, top 1 in ongoing exchange students); Award for Outstanding Academic Performance (2023, 2024, top 5% in CS major); Professor Omar Wing Memorial Scholarship (2022, top 1 in CS major); Dean's List (2022-2024, top 10% in the department); Honors at Entrance Scholarship (2021, top 1 in the Province)

Research Interest

Embodied AI, Robot Learning, Multi-modal Learning.

Publications & Manuscripts

Yuncong Yang*, **Han Yang***, Jiachen Zhou, Peihao Chen, Hongxin Zhang, Yilun Du, and Chuang Gan. SnapMem: Snapshot-based 3D Scene Memory for Embodied Exploration and Reasoning. *arXiv preprint arXiv:2411.17735*, 2024.

Han Yang, Kun Su, Yutong Zhang, Jiaben Chen, Kaizhi Qian, Gaowen Liu, and Chuang Gan. UniMuMo: Unified Text, Music, and Motion Generation. *arXiv preprint arXiv:2410.04534*, 2024.

Han Yang*, Tianyu Wang*, Xiaowei Hu, and Chi-Wing Fu. SILT: A Shadow-aware Iterative Label Tuning Approach for Learning to Detect Shadows from Noisy Labels. In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, 2023.

Research Experience

Lifelong scene memory for embodied exploration and reasoning May 2024 - present
supervised by Prof. Chuang Gan, UMass Amherst & MIT-IBM Watson AI Lab *MA, USA*

- Proposed a snapshot-based scene representation that uses a set of informative images to represent scenes.
- Integrated with frontier-based exploration to facilitate active exploration with VLMs.
- Designed an incremental memory construction pipeline and a memory retrieval mechanism for lifelong memory.
- Achieved state-of-the-art performances on embodied question-answering and lifelong navigation benchmarks.

Unified generative model for music, motion and language May 2023 - May 2024
supervised by Prof. Chuang Gan, UMass Amherst & MIT-IBM Watson AI Lab *MA, USA*

- Able to perform conditional generation tasks on any combination of music, motion, and text.
- Adopted dynamic-time-warping to align unpaired music and motion and synthesize large-scale data.
- Employed a joint codebook for encoding music and motion and performed music-motion joint generation.
- Reduced computation demands by only requiring fine-tuning existing music and language models.

Shadow detection with self-training on noisy training data May 2022 - Feb 2023
supervised by Prof. Chi-Wing Fu, CUHK *Hong Kong SAR, China*

- Designed a self-training framework to train a shadow detection network and refine the noisy training data
- Proposed data augmentation methods to enhance the network's understanding of shadow
- Relabeled and refined the test set of SBU-shadow dataset
- Surpassed previous state-of-the-art methods by large margins, *i.e.*, reduced Balanced Error Rate from 5.58 to 4.18.

Extra-curricular Activities

- Won Honorable Mention Award in 2022 Mathematical Contest in Modeling.

Skills

Languages	Mandarin (native), English
Programming	Python, PyTorch, C/C++, OpenGL, Java, html, LaTeX
Others	Figma, Pr, SolidWorks, Blender, TeleportHQ