

Jaewoo (Jeffrey) Heo

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EDUCATION

Stanford University

Stanford, CA, **Expected June 2025**

M.S in Computer Science (CS) Artificial Intelligence Track

PROFESSIONAL EXPERIENCE

Medical AI and Computer Vision Lab (MARVL)

Mar. 2023 – Present

Machine Learning Research Intern

Stanford, CA

- Led multiple first-author submissions to CV/ML conferences and journals on 3D human motion reconstruction
- Leading medical AI research in surgical tool tracking (Wellcome LEAP:SAVE), and trauma bay temporal action segmentation

Stanford Vision and Learning Lab (SVL)

Nov. 2023 – Present

Machine Learning Research Intern

Stanford, CA

- Leading “Stable-Diffusion Fine-tuning with Foundation Model Feature Conditioning for 3D HMR” project
- Developed a novel 3D HMR framework that leveraged NeRF rendering of the human body in “NeuHMR: Neural Rendering-Guided Human Motion Reconstruction”

Ermon Group

Mar. 2023 – Jan. 2024

Machine Learning Research Intern

Stanford, CA

- Led a project on the algorithmic generation of prompt injections that effectively serve as adversarial attacks on LLMs
- Used GPT-3 API, Llama -2, and Falcon-40B in the optimization algorithm to derive the most effective prompt injections

PUBLICATION

DeformHMR: Vision Transformer with Deformable Cross-Attention for 3D Human Mesh Recovery (3DV’25)

Jaewoo Heo, George Hu, Zeyu Wang, Serena Yeung-Levy

Motion Diffusion-Guided 3D Global HMR from a Dynamic Camera (submitted to TMLR)

Jaewoo Heo, Kuan-Chieh Wang, Karen Liu, Serena Yeung-Levy

Ask, Pose, Unite: Scaling Data Acquisition for Close Interactions with Vision Language Models (submitted to CVPR’25)

Laura Bravo-Sanchez, Jaewoo Heo, Zhenzhen Weng, Kuan-Chieh Wang, Serena Yeung-Levy

NeuHMR: Neural Rendering-Guided Human Motion Reconstruction (3DV’25)

Tiange Xiang, Kuan-Chieh Wang, Jaewoo Heo, Ehsan Adeli, Serena Yeung-Levy, Scott Delp, Li Fei Fei

PROJECT EXPERIENCE

Trauma Bay Video Understanding for Action Detection & Segmentation (MARVL)

Aug. 2024 – Present

- Trained MS-TCN++ to segment four crucial temporal phases in trauma bay resuscitation: pre-arrival, paramedic handover, acute resuscitation, and pre-departure
- Fine-tuned ActionFormer to detect temporal segments of X-ray imaging, FAST exam, blood transfusion, etc.

Stable-Diffusion Fine-tuning with Foundation Model Feature Conditioning for 3D HMR (SVL)

Aug. 2024 – Present

- Fine-tuning a pre-trained Stable Diffusion U-Net with DINOv2 and ViTPose features as conditioning for 3D HMR

Wellcome LEAP:SAVE (SOAR Computer Vision Team, MARVL)

Jun. 2024 – Present

- Developed a novel surgical tool tracking algorithm and surgical performance metric calculation algorithm built on top of this tracking algorithm to compute surgical performance metrics on laparoscopic cholecystectomy videos

TECHNICAL SKILLS & INTERESTS

Tech Stack: C/C++, Python (PyTorch, CUDA, TensorFlow, Keras, NumPy, Pandas, HF Transformers), Java, MATLAB, Julia, Unix

Interests: Music Production, LP/Record Collecting, The Beatles, Tennis, UEFA Champions League, The Office