Hengyue (Henry) Liu

Ph.D. @ UCR

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Summary

- Ph.D. New Graduate 2024
- Research-related positions
- Full-time or Contractor
- Willing to relocate

Research Interests

- Scene Graph Generation
- Foundation Models
- Generative Models
- Open World Learning

Prior Research

- Video Foundation Models
- Scene Graph Generation
- Long-tailed Learning
- Object Detection
- Human Pose Estimation
- Mobile Vision

Skills

- Python
- C/C++
- PyTorch
- TensorFlow
- OpenCV
- Matlab
- Docker
- Kubernetes
- Git

Patents

[1] B. Bhanu, **H. Liu**, and R. Li, *Athlete style recognition system and method*, US Patent 11,544,928, 2023.

Education

2017 - Present	Ph.D. in EE	University of California, Riverside	Riverside, CA
2015 - 2016	M.S. in EE	University of Southern California	Los Angeles, CA
2010 - 2014	B.S. in EE	Beijing Univ. of Posts and Telecoms.	Beijing, China

Publications

[1] **H. Liu**, K. Min, H. A. Valdez, and S. Tripathi, "Contrastive Language Video Time Pre-training," *ArXiv*, 2024.

[2] **H. Liu** and B. Bhanu, "RepSGG: Novel Representations of Entities and Relationships for Scene Graph Generation," *TPAMI*, 2024.

[3] **H. Liu**, S. Parajuli, J. Hostetler, S. Chai, and B. Bhanu, "Dynamically Throttleable Neural Networks," *Machine Vision and Applications*, 2022.

[4] **H. Liu** and B. Bhanu, "JEDE: Universal Jersey Number Detector for Sports," *IEEE TCSVT*, 2022.

[5] **H. Liu**, N. Yan, M. Mortazavi, and B. Bhanu, "Fully Convolutional Scene Graph Generation," *CVPR*, 2021, Oral.

[6] **H. Liu** and B. Bhanu, "Pose-Guided R-CNN for Jersey Number Recognition in Sports," *CVPRW*, 2019.

[7] T. Gupta, **H. Liu**, and B. Bhanu, "Early Wildfire Smoke Detection in Videos," *ICPR*, 2021.

[8] B. X. Guan, B. Bhanu, R. Theagarajan, **H. Liu**, P. Talbot, and N. Weng, "Human Embryonic Stem Cell Classification: Random Network with Autoencoded Feature Extractor," *Journal of Biomedical Optics*, 2021.

Experience

01/2024 - 06/2024 — Research Intern, Intel AI Lab — San Diego, CA

|Python| |PyTorch| |Kubernetes| |Docker|

- Proposed a efficient approach to learning language, video, and temporal representations in long-form videos via contrastive learning.
- Achieved state-of-the-art ZS results of 35.3 mAP on CharadesEgo.

06/2020 - 11/2020 — Research Intern, Futurewei Technologies — Santa Clara, CA

|Python| |PyTorch| |Docker|

- Proposed a novel bottom-up fully convolutional scene graph generation method [4] that can detect entities and relationships simultaneously with fast inference speed (fastest model achieves ~25FPS).

06/2019 - 09/2019 — Research Intern, Latent AI — Princeton, NJ

|Python| |PyTorch|

- Proposed a novel dynamically throttleable neural network [2] that can self-regulate performances and computational load in response to a single heuristic/learnable scalar control signal on vision tasks like image classification, object detection, and gesture recognition.

02/2017 - 08/2017 — Computer Vision Software Engineer, Frenzy AI — Los Angeles, CA

|Python| |PHP| |SQL| |AWS|

- Led a team of 5 engineers for building a precise garment visual search system as a team leader and full-stack engineer.
- Played a pivotal role in the company's seed funding and patent.
- Implemented RESTful APIs and back-end models for human pose estimation and object recognition to identify garment in images.

05/2016 - 12/2016 — Computer Vision Intern, CloudSight — Los Angeles, CA

|Python| |C++| |Torch/Lua| |OpenCV| |Docker|

- Designed a dense circular object detection and counting algorithm.
- Implemented a text sentiment classification model.
- Implemented an image retrieval system with BoW and TF-IDF.