Bo Pang

Computer Science, Shanghai Jiao Tong University
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EDUCATION

Shanghai Jiao Tong University, China (SJTU) *Sep. 2014 - Jun. 2018*
Bachelor of Engineering in Computer Science and Engineering

Shanghai Jiao Tong University, China (SJTU) *Sep. 2018 - Jun. 2020*
Master of Engineering in Computer Science and Engineering

Shanghai Jiao Tong University, China (SJTU) *Sep. 2020 - Jun. 2024*
Ph.D. student in Computer Science, Wu Wenjun Honorable Class
Supervised by Prof. Cewu Lu

RESEARCH INTEREST

Computer Vision & Unsupervised Learning. Currently working on video understanding and representation learning.

RESEARCH EXPERIENCE

Shanghai Jiao Tong University Sep. 2018 - now
Master & Ph. D. Student
Advisor: Cewu Lu

- *Video Understanding*
  - Proposed Semi-coupled Structure, a framework that can separately learn spatial and temporal concepts. This work is accepted by Nature Machine Intelligence and gained the WAIC Outstanding Youth Paper Award.
  - Designed a general-purpose method to model long videos on limited resources.
  - Proposed a one-stage multi-object tracking algorithm that provides a new technical path beside the traditional "tracking-by-detection" framework. The CVPR paper is cited by 130+.
  - Designed the action-adverb concept and related tasks for learning higher-order video dynamics.
- *Unsupervised representation learning*
  - Proposed the Synchronous Momentum Grouping method for learning unsupervised visual representation. It pushes the performance of the unsupervised methods to surpass the naïve supervised ones across different backbones.
  - Proposed the Cycle-attention Contrastive Learning method for capturing effective video representation in an implicitly contrastive manner, which can better find the positive pairs among video frames.

PUBLICATION

Unsupervised Visual Representation Learning by Synchronous Momentum Grouping
Bo Pang, Yifan Zhang, Yaoyi Li, Jia Cai, Cewu Lu
European Conference on Computer Vision (ECCV), 2022

Unsupervised Representation for Semantic Segmentation by Implicit Cycle-Attention Contrastive Learning
Bo Pang, Yizhuo Li, Yifan Zhang, Gao Peng, Jiajun Tang, Kaiwen Zha, Jiefeng Li, Cewu Lu
AAAI Conference on Artificial Intelligence (AAAI), 2022

PGT: A Progressive Method for Training Models on Long Videos
Bo Pang, Gao Peng, Yizhuo Li, Cewu Lu
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021 ***(oral)***

TDAF: Top-Down Attention Framework for Vision Tasks
Bo Pang, Yizhuo Li, Jiefeng Li, Muchen Li, Hanwen Cao, Cewu Lu
AAAI Conference on Artificial Intelligence (AAAI), 2021

Complex sequential understanding through the awareness of spatial and temporal concepts
Bo Pang, Kaiwen Zha, Hanwen Cao, Jiajun Tang, Minghui Yu, Cewu Lu
Nature Machine Intelligence

TubeTK: Adopting Tubes to Track Multi-Object in a One-Step Training Model
Bo Pang, Yizhuo Li, Yifan Zhang, Muchen Li, Cewu Lu
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020 ***(oral)***

Further Understanding Videos through Adverbs: A New Video Task
Bo Pang, Kaiwen Zha, Yifan Zhang, Cewu Lu
AAAI Conference on Artificial Intelligence (AAAI), 2020

Deep RNN Framework for Visual Sequential Applications
Bo Pang, Kaiwen Zha, Hanwen Cao, Chen Shi, Cewu Lu
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019

Human Action Adverb Recognition: ADHA Dataset and A Three-Stream Hybrid Model
Bo Pang, Kaiwen Zha, Cewu Lu
IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2018

Semantic Segmentation by Early Region Proxy
Yifan Zhang, **Bo Pang**, Cewu Lu
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022

Human Pose Regression with Residual Log-likelihood Estimation
Jiefeng Li, Siyuan Bian, Ailing Zeng, Can Wang, **Bo Pang**, Wentao Liu, Cewu Lu
IEEE International Conference on Computer Vision (ICCV), 2021 ***(oral)***

Asynchronous Interaction Aggregation for Action Detection
Jiajun Tang, Jin Xia, Xinzhi Mu, **Bo Pang**, Cewu Lu
European Conference on Computer Vision (ECCV), 2020

ASAP-Net: Attention and Structure Aware Point Cloud Sequence Segmentation
Hanwen Cao, Yongyi Lu, **Bo Pang**, Cewu Lu, Alan Yuille, Gongshen Liu
British Machine Vision Conference 2020 (BMVC), 2020

Efficient 3D Video Engine Using Frame Redundancy
Gao Peng, **Bo Pang**, Cewu Lu
Winter Conference on Applications of Computer Vision 2021 (WACV), 2021

SERVICES

Reviewer for TPAMI, TIP, NeuroComputing, CVPR'21, ICCV'21, ECCV'22, AAAI'22 etc.

SELECTED AWARDS

WAIC Outstanding Youth Paper Award	*Jul. 2020*
Yang Yuan-Qing Scholarship	*May. 2020*
Outstanding Graduate of Shanghai University	*Jun. 2018*

TEACHING

Teaching Assistant, CS348 Computer Vision	*Fall in 2017, 2018, 2019, 2020*

CODING LANGUAGE

Python	*Professional for Deep Learning and Computer Vision*
C++	*Occasionally adopted for small projects*