YAN HAO

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RESEARCH INTERESTS

Computer Vision(Video, 3D Vision combined with Robotics), **Deep Learning**

EDUCATION

Shanghai Jiao Tong University, China   Sept. 2016 - Jun. 2020
- B.S. in Computer Science, **ACM Class**, Zhiyuan College
- **Advisor:** Prof. Yong Yu and Prof. Cewu Lu

University of California, Berkeley   Sept. 2019 - Present
- Visiting Student in Berkeley DeepDrive & BAIR lab
- **Advisors:** Prof. Trevor Darrell and Prof. Fisher Yu

- **GPA:** 3.65/4.0 (Computer Vision:100/100)

- **Standardized Tests:** **TOEFL:**106(L27,S24,R27,W28), **GRE:**319(150+169+3.5), CET-6: 590, CET-4: 654

MANUSCRIPTS

3D Objectness Estimation via Bottom-up Regret Grouping [Paper]   In submission
- Zelin Ye, **Yan Hao**, Liang Xu, Rui Zhu, Cewu Lu
- Area: Segmentation, grouping and shape

PAL-Net: Predicate-Aware Learning for Scene Graph Generation   In submission
- Liang Xu, Yong-Lu Li, Mingyang Chen, **Yan Hao**, Cewu Lu
- Area: Scene analysis and understanding

PUBLICATIONS

Visual Rhythm Prediction with Feature-Aligned Network [Paper]   MVA 2019
- Yutong Xie, Haiyang Wang, **Yan Hao**, Zihao Xu
- The paper proposed a data-driven visual rhythm prediction method, in which several visual features are extracted and then fed into an end-to-end neural network to predict the visual onsets.

RESEARCH EXPERIENCE

DeepDrive & BAIR, UC, Berkeley   Jul. 2019 - Present
- Advisor: Prof. Fisher Yu and Prof. Trevor Darrell
- **Video Object Segmentation**

We target at conducting instance level object segmentation on driving videos using mask propagation technique and optical flow. It is challenging since our dataset has more complex occlusion pattern and stronger requirement on feature discrimination power compared with previous dataset like Davis or MOTS dataset.

Machine Vision and Intelligence Group   Jul. 2018 - Jul. 2019
- Advisor: Prof. Cewu Lu
- **Project 1: 3D Objectness**

We propose a robust 3D objectness estimation method in a bottom-up manner, i.e. first over-segment scene point clouds and then group them iteratively with a novel regret mechanism to withdraw incorrect groupings. Our experiments achieved state-of-the-art 3D objectness methods with a small number of proposals in two difficult datasets, GMU-kitchen and CTD.

- Project 2: Predicate Aware Learning Network (PAL-Net)
Our proposed PAL-Net has two ingredients for scene graph generation. First we introduce a novel embedding loss for translation embedding in a metric learning manner. Then we take predicates as conditions for contextual modeling to alleviate noise. Extensive experiments on two challenging datasets, VRD and Visual Genome yield a state-of-the-art performance.

COURSE PROJECTS

2016	**Chinese Battle Chess AI:** A Chinese Battle Chess program
2017	**STL:** Implementation of three data structures in C++: vector,map and deque
	Mips-simulator: C++ program that simulates five-stage pipeline to process MIPS instructions.
2018	**RISC-V CPU:** CPU simulator with five-stage pipeline, implemented in Verilog HD.
	Text Classification: A classification model for article recommendation.
	Item Recommendation: A recommendation system to predict the preference score of the given user on the specific items.
	Compiler[Code]: A compiler in Java whose source language is simplified C and target language is MIPS assembly.

TEACHING EXPERIENCE

C++ Programming(CS152): Served as a teaching assistant, duty included designing part of the homework and exam problems and helping students with their problems about homework.

AWARDS AND HONORS

Meritorious Winner in Mathematical(Interdisciplinary) Contest in Modeling**(MCM/ICM)**	2018
Xing Cai Honorary Scholarship, Shanghai Jiao Tong University	2017
Zhiyuan Honorary Scholarship, Shanghai Jiao Tong University	2016,2017,2018

SKILLS

Programming Languages: Python(PyTorch, TensorFlow), C/C++, Java, Matlab, Latex