

Yu Zhang, Ph.D. Candidate

GENERAL INFORMATION

Date of birth: April 26, 1990
Address: Mailbox 6863, Beihang University, Beijing, China
Phone: +8615801382736
Email: zhangyulb@gmail.com
Personal website: <https://zhangyulb.github.io>

EDUCATION

Beihang University, Beijing, China
Ph.D. Candidate, Computer Science, Fall 2012 - Present, Supervisor: Prof. Qinping Zhao
B.Eng., Computer Science and Engineering, Fall 2008 - July 2012, GPA - 3.81/4.0

RESEARCH STATEMENT

My research interests include computer vision and image/video processing, with a special focus on developing principled learning/optimization algorithms to solve video understanding problems.

PREVIOUS PUBLICATIONS

Yu Zhang, Xiaowu Chen, Jia Li, Wei Teng, Haokun Song. Exploring Weakly Labeled Images for Video Object Segmentation with Submodular Proposal Selection. IEEE TIP, 2018.

Changqun Xia, Jia Li, Xiaowu Chen, Anlin Zheng, **Yu Zhang**. What is and What is not a Salient Object? Learning Salient Object Detector by Ensembling Linear Exemplar Regressors. CVPR, 2017. (Spotlight, 8% acceptance)

Yu Zhang, Xiaowu Chen, Jia Li, Chen Wang, Changqun Xia. Semantic Object Segmentation in Tagged Videos via Detection. IEEE TPAMI, 2017.

Yafei Song, Xiaowu Chen, Xiaogang Wang, **Yu Zhang**, Jia Li. 6-DOF Image Localization from Massive Geo-tagged Reference Images. IEEE TMM, 2016.

Yu Zhang, Wei Teng, Xiaowu Chen, Jia Li, Zhiqiang He. Local Shape Transfer for Image Co-segmentation. BMVC, 2016. (Oral, 10% acceptance)

Yu Zhang, Xiaowu Chen, Liang Lin, Changqun Xia, High-Level Representation Sketch for Video Event Retrieval. SCIENCE CHINA Information Sciences, 2016.

Yafei Song, Xiaowu Chen, Xiaogang Wang, **Yu Zhang**, Jia Li. Fast Estimation of Relative Poses for 6-DOF Image Localization. BigMM, 2015. (Best paper award)

Han Zhang, Xiaowu Chen, **Yu Zhang**, Jia Li, Qing Li, Xiaogang Wang. Cuboids Detection in RGB-D Images via Maximum Weighted Clique. ICME, 2015.

Yu Zhang, Xiaowu Chen, Jia Li, Chen Wang, Changqun Xia. Semantic Object Segmentation via Detection in Weakly Labeled Video. CVPR, 2015. (Oral, 3.3% acceptance)

Qing Li, Xiaowu Chen, Yafei Song, **Yu Zhang**. Geodesic Propagation for Semantic Labeling. IEEE TIP, 2014.

Kai Jiang, Xiaowu Chen, **Yu Zhang**, Qinping Zhao. Video Event Representation and Inference on And-Or Graph. Computer Animation and Virtual Worlds, 2012.

RESEARCH
EXPERIENCE

Graduate Student, State Key Laboratory of System & Technology, Beihang University

Instance-level Video Segment Proposals

Aug. 2017 - Present

- Explored the first unified deep learning architecture to segment object candidates in video, which is trainable with sparse annotations.
- Currently achieved close results with SoA heuristic methods, but running two magnitudes faster.

Object Segmentation in Weakly Labeled Videos

Nov. 2013 - July 2017

- Proposed to integrate the noisy image-based object detection into weakly supervised video segmentation pipelines with principled optimization frameworks (CVPR'15; TPAMI'17; TIP'18).
- Achieved SoA results on Youtube-Objects, DAVIS and SegTrack v2 benchmarks.

Salient Object Segmentation

June 2016 - Nov. 2016

- Proposed an exemplar-based learning/inference approach for salient object detection and segmentation by fusing a large pool of linear regressors (CVPR'17).
- Achieved similar results with SoA deep learning methods, but with much fewer parameters.

Image Co-segmentation

March 2016 - July 2016

- Proposed to unify graph-based labeling and local shape embedding for segmenting the common objects present in a set of related images (BMVC'16).
- SoA results on the Fashionista benchmark with more than 30% relative improvements.

Cuboid Detection in RGB-D Images

July 2014 - Dec. 2014

- Explored various 2D/3D based features and the use of maximum weighted clique techniques for solving 3D cuboid detection in indoor RGB-D images (ICME'15).
- Doubled the previous detection rates on the NYU benchmark.

6-DOF Image-based Camera Pose Estimation

Sept. 2013 - May. 2014

- Developed a system that estimates the camera pose of an input image by matching its visual appearance with many calibrated database images.
- Achieved comparable performance with SoA methods with significantly reduced inference speed.

Semantic Segmentation in Images and Videos

May 2013 - Sept. 2013

- Developed a non-parametric approach built on geodesic propagation theories for semantic image/video segmentation (TIP'14).
- Achieved SoA or comparable results on CamVid, LHI and CBCL benchmarks.

Video Event Representation and Inference

Mar. 2012 - Apr. 2013

- Developed graph-based video representations and the corresponding inference algorithms for video content understanding and retrieval (CAVW'12; SCIS'16).

SERVICES/REWARDS

- Reviewer for CVPR, TIP, TMM, ACCV
- The Academic Excellence Foundation of BUAA for PhD Students, Beihang University, 2017
- The National Graduate Scholarship, 2015
- The Graduate Innovation Award, School of Computer Science, Beihang University, 2014
- The Changzhao Qian & Xingyuan Shen Scholarship (1st Prize), Beihang University, 2011
- The Excellent Student Award, Beihang University, 2010 - 2011
- The Undergraduate Mathematical Contest (1st Prize, Rank 1st), Beihang University, 2009
- The National Undergraduate Mathematical Contest (Second Prize in Beijing Region), 2009

PROFESSIONAL
SKILLS

- Systems & Tools: Ubuntu, Python/Matlab/C++, OpenCV/Qt, Tensorflow/Caffe
- Scientific writing & presentation