

Tianshu Yu

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Background

EDUCATION

Arizona State University Ph. D. in Computer Science	Tempe, AZ, US 2017 - 2021
University of Calgary M. Sc. in Geomatics Engineering	Calgary, Alberta, Canada 2014 - 2016
Shenyang University of Technology B. Sc. in Computer Science	Shenyang, China 2009 - 2012

RESEARCH INTERESTS

My research interest covers several aspects in machine learning and optimization of combinatorial problems. I am particularly interested in investigating modeling, optimization and learning of graph, and seeking the its structural extension within deep learning framework. I also conduct research on RNNs and determinantal point process. My long-term goal is to build up scalable and reliable graph/combinatorial learning and optimization system for real-world tasks.

EXPERIENCE

WORK EXPERIENCE

- **Full-time Algorithm Engineer, Philips Healthcare, Shenyang**, Jul 2012 - Apr 2014.
I was responsible for research and development of algorithmic part of Philips CT product, especially medical image reconstruction, retrieval and segmentation. These features were integrated into Philips CT machines. I also developed a scheduling optimization algorithm for the warehouse.

INTERN EXPERIENCE

- **Applied Scientist Intern, AWS, Seattle**, May 2020 - Aug 2020.
I was conducting research on neural architecture search from a discrete generative perspective. My mentor was Hao Li.
- **Research Intern, Adobe Research, Seattle**, May 2019 - Aug 2019.
I was conducting research on image inpainting for natural images with segmentation as guidance. This project has been filed to a US patent application. My mentors include Eli Shechtman, Connelly Barnes and Sohrab Amirghodsi.
- **Research Intern, IBM Research, Shanghai**, May 2017 - Aug 2017.
I was conducting research on graph matching and its applications in computer vision. The results have been summarized into two papers and accepted by CVPR2018 and Neurips2018. I was supported by IBM Great Mind project. My mentor was Junchi Yan.

PUBLICATION

Published

- [1]. [Tianshu Yu](#), Runzhong Wang, Junchi Yan, Baoxin Li.
Deep Latent Graph matching.
ICML2021

- [2]. Runzhong Wang, Tianqi Zhang, [Tianshu Yu](#), Junchi Yan, Xiaokang Yang.
Combinatorial Learning of Graph Edit Distance via Dynamic Embedding.
CVPR2021
- [3]. [Tianshu Yu](#)#, Yikang Li#, Baoxin Li.
RhyRNN: Rhythmic RNN for Recognizing Events in Long and Complex Videos.
ECCV2020 (#equal contribution)
- [4]. [Tianshu Yu](#), Junchi Yan, Baoxin Li.
Determinant Regularization for Gradient-Efficient Graph Matching.
CVPR2020
- [5]. [Tianshu Yu](#), Runzhong Wang, Junchi Yan, Baoxin Li.
Learning Deep Graph Matching via Channel-Independent Embedding and Hungarian Attention.
ICLR2020
- [6]. [Tianshu Yu](#), Yikang Li, Baoxin Li.
Deep Learning of Determinantal Point Processes via Proper Spectral Sub-gradient.
ICLR2020
- [7]. [Tianshu Yu](#), Junchi Yan, Yilin Wang, Wei Liu, Baoxin Li.
Generalizing graph matching beyond quadratic assignment model.
NeurIPS2018
- [8]. Yikang Li#, [Tianshu Yu](#)#, Baoxin Li.
Simultaneous event localization and recognition for surveillance video.
IEEE International Conference on Advanced Video and Signal Based Surveillance. Auckland, New Zealand. 2018 (#equal contribution)
- [9]. [Tianshu Yu](#), Junchi Yan, Wei Liu, Baoxin Li.
Incremental multi-graph matching via diversity and randomness based graph clustering.
ECCV2018
- [10]. [Tianshu Yu](#), Junchi Yan, Jieyi Zhao, Baoxin Li.
Joint cuts and matching of partitions in one graph.
CVPR2018
- [11]. Zhiyuan Fang, Shu Kong, [Tianshu Yu](#), Yezhou Yang.
Weakly Supervised Attention Learning for Textual Phrases Grounding.
Language And Vision Workshop on CVPR2018
- [12]. [Tianshu Yu](#), Ruisheng Wang.
Enhancing scene parsing by transferring structures via efficient low-rank graph matching.
ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems. San Francisco, US. 2016
- [13]. [Tianshu Yu](#), Ruisheng Wang.
Graph matching with low-rank regularization.
WACV2016
- [14]. [Tianshu Yu](#), Ruisheng Wang.
Scene parsing using graph matching on street-view data.
Computer Vision and Image Understanding 145:70-80, 2016
- [15]. Hong Shao, Shuang Chen, Jieyi Zhao, Wencheng Cui, [Tianshu Yu](#).
Face recognition based on subset selection via metric learning on manifold.
Frontiers of Information Technology & Electronic Engineering 16:1046-1058, 2015
- [16]. [Tianshu Yu](#)#, Hong Shao#, Mengjia Xu, Wencheng Cui.
Image region duplication detection based on circular window expansion and phase correlation.
Forensic Science International 222:71-82, 2012 (#equal contribution)

Preprint

- [17]. Yikang Li#, [Tianshu Yu](#)#, Baoxin Li.
Recognizing Video Events with Varying Rhythms.
arXiv preprint arXiv:2001.05060, 2020 (#equal contribution)
- [18]. Liang Mi, [Tianshu Yu](#), Jose Bento, Baoxin Li, Yalin Wang.
Variational Wasserstein Barycenters for Geometric Clustering.
arXiv:2002.10543, 2020

HONORS

- CIDSE Doctoral Fellowship, Arizona State University, Spring 2021
- Engineering Graduate Fellowship, Arizona State University, 2018-2021
- Alberta Innovates-Technology Futures Scholarship, University of Calgary, 2014-2016

TEACHING EXPERIENCE

- **Teaching Assistant.** CSE100: C/C++ programming language, Fall 2017, Spring 2018, Arizona State University.
- **Teaching Assistant.** CSE110: Java programming language, Fall 2020, Arizona State University.
- **Teaching Assistant.** FSE110: Introduction to engineering, Fall 2018, Arizona State University.
- **Teaching Assistant.** CSE/EEE230: Computer Organization and Assembly Language, Fall 2018, Arizona State University.

SERVICE

- Reviewer (Journals) - *IEEE Transactions on Image Processing*, *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*; *IEEE Transactions on Image Processing (TIP)*; *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*; *Pattern Recognition (PR)*; *Pattern Recognition Letters*.
- Committee/Reviewer (Conferences) - *ICLR 2021*; *ICML 2021*; *NIPS 2020*; *CVPR 2019-2021*; *ICCV 2019,2021*; *ECCV 2020*; *AAAI 2019-2021*; *IJCAI 2020*; *WACV 2021*; *ACCV 2020*.

LANGUAGES

Chinese, English and Japanese.

REFERENCES

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