Yunhui Guo

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Research Interests

Computer Vision.
Data Efficient Learning (Few-shot, Transfer, Lifelong Learning).
Geometric Learning.

Education

2017-2020 **PhD, Computer Science and Eng.**, University of California, San Diego, USA
Advisor: Prof. Tajana Rosing

2014-2017 **MSc, Computer Science and Eng.**, Zhejiang University, Hangzhou, China

2010-2014 **BSc, Communication Eng.**, University of Electronic Science and Technology of China,
Chengdu, China

Academic and Research Employment

2022- **Assistant Professor,** *The University of Texas at Dallas,* Richardson, TX, USA

2020-2022 **Postdoctoral Fellow,** *UC Berkeley & ICSI,* Berkeley, USA
Advisor: Prof. Stella Yu
- Learning in non-Euclidean space
- Machine learning for natural hazards prevention.

2017-2020 **Research Assistant, SeeLab**, *Department of Computer Science and Engineering, University of California, San Diego*
- Transfer learning, few-shot, lifelong learning.
- Machine learning on edge devices.

Summer-2020 **Research Intern, Qualcomm AI Research**, *San Diego, USA*
- Privacy-aware neural network pruning.

Summer-2019 **Research Intern, IBM Research**, *New York, USA*
- Cross-domain few-shot learning.

Summer-2018 **Research Intern, IBM Research**, *New York, USA*
- Transfer learning and multi-domain learning.

Summer-2017 **Software Engineer Intern, Intel**, *Shanghai, China*
- BigDL deep learning library.

Publications

1. Clipped Hyperbolic Classifiers Are Super-Hyperbolic Classifiers.
   Yunhui Guo, *Xudong Wang, Yubei Chen, Stella Yu*
   The Conference on Computer Vision and Pattern Recognition (CVPR), 2022

2. CO-SNE: Dimensionality Reduction and Visualization for Hyperbolic Data.
   Yunhui Guo, *Haoran Guo, Stella Yu*
   The Conference on Computer Vision and Pattern Recognition (CVPR), 2022

3. Unsupervised Hierarchical Semantic Segmentation with Multiview Cosegmentation and Clustering Transformers.
   Tsung-Wei Ke, Jyh-Jing Hwang, ***Yunhui Guo***, *Xudong Wang, Stella Yu*
   The Conference on Computer Vision and Pattern Recognition (CVPR), 2022
   Selected for Oral presentation

4. AdaLN: A Vision Transformer for Multi-domain Learning and Extraction of Building Information for Natural Hazard Analysis.
   Yunhui Guo, *Chaofeng Wang, Stella X. Yu, Frank McKenna, Kincho H. Law*
   Journal of Computing in Civil Engineering

5. Improve Image-based Skin Cancer Diagnosis with Generative Self-Supervised Learning.
   Zhihang Ren, **Yunhui Guo**, *Stella X. Yu, David Whitney*
   IEEE/ACM Conference on Connected Health Applications, Systems, and Engineering Technologies (CHASE), 2021

6. MAT: Processing In-Memory Acceleration for Long-Sequence Attention.
   Minxuan Zhou, **Yunhui Guo**, *Weihong Xu, Bin Li, Kevin W Eliceiri, Tajana Rosing*
   ACM/IEEE Design Automation Conference (DAC), 2021

7. HyperRec: Efficient Recommender Systems with Hyperdimensional Computing.
   Yunhui Guo, *Mohsen Imani, Jaeyoung Kang, Sahand Salamat, Justin Morris, Baris Aksanli, Yeseong Kim, Tajana Rosing*
   Asia and South Pacific Design Automation Conference (ASP-DAC), 2021

8. Efficient Distributed Training in Heterogeneous Mobile Networks with Active Sampling..
   Yunhui Guo, *Xiaofan Yu, Kamalika Chaudhuri,Tajana Rosing*
   International Conference on Mobility, Sensing and Networking (MSN), 2020

9. Improved Schemes for Episodic Memory-based Lifelong Learning .
   Yunhui Guo*, *Mingrui Liu*, Tianbao Yang, and Tajana Rosing*
   Neural Information Processing Systems (NeurIPS), 2020
   Selected for spotlight presentation
   Equal Contribution*

10. A Broader Study of Cross-Domain Few-Shot Learning .
    Yunhui Guo*, *Noel C. F. Codella*, Leonid Karlinsky, James V. Codella, John R. Smith, Kate Saenko, Tajana Rosing, Rogerio Feris*
    European Conference on Computer Vision (ECCV), 2020
    Equal Contribution*

11. AdaFilter: Adaptive Filter Fine-tuning for Deep Transfer Learning .
    Yunhui Guo, *Yandong Li, Liqiang Wang, Tajana Simunic Rosing*
    AAAI Conference on Artificial Intelligence (AAAI), 2020

12. SpotTune: dynamic transfer learning via adaptive fine-tuning.
    Yunhui Guo, *Honghui Shi, Abhishek Kumar,Tajana Simunic Rosing, Kristen Grauman, Rogerio Feris*
    The Conference on Computer Vision and Pattern Recognition (CVPR), 2019

13. Depthwise Convolution is All You Need for Learning Multiple Visual Domains.
    Yunhui Guo*, *Yandong Li*, Liqiang Wang, Tajana Simunic Rosing*
    AAAI Conference on Artificial Intelligence (AAAI), 2020
    Equal Contribution*

14. Hierarchy-Aware Machine Learning Inference for Networked Sensing Applications.
    Anthony Thomas, **Yunhui Guo**, *Yeseong Kim, Baris Aksanli, Arun Kumar, Tajana Simunic Rosing*
    IEEE International Conference on Networking, Sensing and Control (ICNSC), 2019

15. A survey on methods and theories of quantized neural networks.
    Yunhui Guo
    Preprint

16. Understanding Users' Budget Constraints for Recommendation with Hierarchical Poisson Factorization.
    Yunhui Guo, *Congfu Xu, Hanzhang Song, Xin Wang*
    In Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence (IJCAI), 2017

17. Incorporating Collaborative Ranking Algorithm with Weighted Recursive Autoencoder for Item Recommendation.
*Hanzhang Song, **Yunhui Guo**, Congfu Xu*
The AAAI-17 Workshop on Crowdsourcing, Deep Learning, and Artificial Intelligence Agents, 2017

18. Constrained Preference Embedding for Item Recommendation .
*Xin Wang, CongFu Xu, **Yunhui Guo**, Hui Qian*
In Proceedings of the Twenty-Fifth International Joint Conference on Artificial Intelligence (IJCAI), 2016

19. LBMF: Log-Bilinear Matrix Factorization for Recommender Systems .
***Yunhui Guo**, Xin Wang, Congfu Xu*
In Advances in Knowledge Discovery and Data Mining - 20th Pacific-Asia Conference (PAKDD), 2016

20. CroRank: Cross Domain Personalized Transfer Ranking for Collaborative Filtering.
***Yunhui Guo**, Xin Wang, Congfu Xu*
In International Conference on Data Mining Workshop (ICDMW), 2015

21. Recommendation Algorithms for Optimizing Hit Rate, User Satisfaction and Website Revenue .
*Xin Wang, **Yunhui Guo**, Congfu Xu*
In Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence (IJCAI), 2015

Teaching Experience

PRIMARY INSTRUCTOR:

Summer 2021 **Introduction to Deep Learning, NHERI SimCenter AI/ML Bootcamp,** *UC Berkeley & ICSI*

TEACHING ASSISTANT:

Spring 2016 **Introduction to Artificial Intelligence.** *Zhejiang University, CSE Department*

Student Supervision

Haoran Guo, *Undergraduate Student*, UC Berkeley

Xiaofan Yu, *PhD Student*, UC San Diego

Yuqian Cheng, *Undergraduate Student*, UC San Diego

Hanzhang Song, *Master Student*, Zhejiang Unviversity

Xinyuan Lu, *Undergraduate Student*, Zhejiang Unviversity

Awards and Recognition

2019 **IBM PhD Fellowship Finalist**

2019 **2019 UCSD Research Expo Best Poster Award**

2017 **UCSD Graduate Fellowship,** *Computer Science and Engineering. Departmental fellowship for the academic year of 2017-2018.*

2016 **National Graduate Fellowship**

2015 **National Graduate Fellowship**

Service

Reviewing **CVPR, NeurIPS, ICLR, AAAI, IJCAI, CL-ICML, DAC, TPAMI**

Organizer **Visual Learning with limited labels: zero-shot, few-shot, any-shot, and cross-domain few-shot learning Workshop,** *CVPR 2020*

Learning from Limited and Imperfect Data (L2ID) Workshop, *CVPR 2021*

Learning from Limited and Imperfect Data (L2ID) Workshop, *ECCV 2022*