

# Yunhui Guo

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## Research Interests

**Deep Learning & Computer Vision.**

**Data Efficient Learning (Few-shot, Transfer, Lifelong Learning).**

**Learning in Non-Euclidean Space.**

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## 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  
Advisor: Prof. Congfu Xu

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

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## Work Experience

2020-Now **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.

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## Publications

2022 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

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

Unsupervised Hierarchical Semantic Segmentation with Multiview Cosegmentation and Clustering Transformers.

Tsung-Wei Ke, Jyh-Jing Hwang, Stella Yu, Xudong Wang, **Yunhui Guo**

The Conference on Computer Vision and Pattern Recognition (CVPR), 2022

**Selected for Oral presentation**

- 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
- 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
- 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
- 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
- 2020 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
- 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\*
- 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\*
- 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
- 2019 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
- 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\*
- 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
- 2018 A survey on methods and theories of quantized neural networks.  
**Yunhui Guo**  
 Preprint

- 2017 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
- 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
- 2016 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
- 2015 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
- CroRank: Cross Domain Personalized Transfer Ranking for Collaborative Filtering.  
**Yunhui Guo**, Xin Wang, Congfu Xu  
 In International Conference on Data Mining Workshop (ICDMW), 2015
- 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*  
 Instructor: Prof. Congfu Xu

## 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**

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## 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, CVPR 2022**

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## References

**Dr. Tajana Rosing**, *Professor, a holder of the Fratamico Endowed Chair, IEEE Fellow*, Department of Computer Science and Engineering, University of California San Diego

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**Dr. Stella Yu**, *Director, ICSI Vision Group*, Computer Science, Vision Science, Cognitive & Brain Sciences, University of California, Berkeley

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**Dr. Rogerio Feris**, *Principal Scientist & Manager, MIT-IBM Watson AI Lab*, IBM Research

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**Dr. Kincho Law**, *Professor, Civil and Environmental Engineering*, Stanford University

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