

# YAN YAN

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📍 School of Electrical Engineering and Computer Science, Washington State University

## WORK EXPERIENCE

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Washington State University, Assistant Professor	2020 - present
University of Iowa, Postdoctoral Research Associate	2018-2020

## EDUCATION

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University of Technology Sydney, Australia Doctor of Philosophy in Information Systems	2015 - 2018
The University of Queensland, Australia Candidate for Master of Philosophy in Information Technology	2014 - 2015
Tianjin University, China B.E. in Computer Science and Technology	2009 - 2013

## AWARDS AND HONORS

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- Selected for New Faculty Highlights, AAAI-2023 Conference
  - Outstanding Graduate Student Research Award, University of Technology Sydney, 2016.
  - Outstanding Student Scholarship, Tianjin University, 2012.

## PUBLICATIONS

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(\* indicates equal contribution)

### Conference Publications

1. Subhankar Ghosh<sup>†</sup>, Yuanjie Shi<sup>†</sup>, Taha Belkhouja, **Yan Yan**, Janardhan Rao Doppa, Brian Jones. “Probabilistically Robust Conformal Prediction.” In *the 39th Conference on Uncertainty in Artificial Intelligence (UAI 2023)*.
2. Subhankar Ghosh<sup>†</sup>, Taha Belkhouja, **Yan Yan**, Janardhan Rao Doppa. “Improving Uncertainty Quantification of Deep Classifiers via Neighborhood Conformal Prediction: Novel Algorithm and Theoretical Analysis.” In *Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI 2023)*.
3. Taha Belkhouja, **Yan Yan**, Janardhan Rao Doppa. Training Robust Deep Models for Time-Series Domain: Novel Algorithms and Theoretical Analysis. In *Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI 2022)*.
4. Yuan, Zhuoning, **Yan Yan**, Milan Sonka, and Tianbao Yang. Robust deep auc maximization: A new surrogate loss and empirical studies on medical image classification. In *International Conference on Computer Vision (ICCV 2021)*.
5. **Yan Yan**, Yi Xu, Qihang Lin, Wei Liu, Tianbao Yang. Optimal Epoch Stochastic Gradient Descent Ascent Methods for Min-Max Optimization. In *Thirty-fourth Conference on Neural Information Processing Systems (NeurIPS 2020)*.
6. **Yan Yan**, Yi Xu, Lijun Zhang, Xiaoyu Wang, Tianbao Yang. Stochastic Optimization for Non-convex Inf-Projection Problems In *Thirty-seventh International Conference on Machine Learning (ICML 2020)*.
7. Qi Qi, **Yan Yan**, Zixuan Wu, Xiaoyu Wang, Tianbao Yang. A Simple And Effective Framework for Pairwise Deep Metric Learning. In *European Conference on Computer Vision (ECCV 2020)*.
8. Pingbo Pan, Ping Liu, **Yan Yan**, Tianbao Yang, Yi Yang. Adversarial Localized Energy Network for Structured Prediction. In *Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI 2020)*.
9. Zhuoning Yuan, **Yan Yan**, Rong Jin, Tianbao Yang. Stagewise Training Accelerates Convergence of Testing Error Over SGD. In *Thirty-third Conference on Neural Information Processing Systems (NeurIPS 2019)*.

10. Zhibin Hu\*, Yongsheng Luo\*, Jiong Lin\*, **Yan Yan** and Jian Chen. Multi-Level Visual-Semantic Alignments with Relation-Wise Dual Attention Network for Image and Text Matching. In *International Joint Conference on Artificial Intelligence (IJCAI 2019)*.
11. Yanbin Liu, **Yan Yan**, Ling Chen, Yahong Han and Yi Yang. Adaptive Sparse Confidence-Weighted Learning for Online Feature Selection. In *Thirty-Third AAAI Conference on Artificial Intelligence (AAAI 2019)*.
12. Guoliang Kang, Liang Zheng, **Yan Yan**, and Yi Yang. Deep adversarial attention alignment for unsupervised domain adaptation: the benefit of target expectation maximization. In *Proceedings of the European Conference on Computer Vision (ECCV 2018)*.
13. **Yan Yan**, Tianbao Yang, Zhe Li, Qihang Lin and Yi Yang. A Unified Analysis of Stochastic Momentum Methods for Deep Learning. In *International Joint Conference on Artificial Intelligence (IJCAI 2018)*.
14. Xuanyi Dong, **Yan Yan**, Wanli Ouyang and Yi Yang. Style Aggregated Network for Facial Landmark Detection. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2018)*.
15. Yu Wu, Yutian Lin, Xuanyi Dong, **Yan Yan**, Wanli Ouyang and Yi Yang. Exploit the Unknown Gradually: One-Shot Video-Based Person Re-Identification by Stepwise Learning. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2018)*.
16. **Yan Yan**, Tianbao Yang, Yi Yang, Jianhui Chen. A Framework of Online Learning with Imbalanced Streaming Data. In *Thirty-First AAAI Conference on Artificial Intelligence (AAAI 2017)*.
17. Yi Xu\*, **Yan Yan**\*, Qihang Lin, Tianbao Yang. Homotopy Smoothing for Non-Smooth Problems with Lower Complexity than  $O(1/\epsilon)$ . In *Neural Information Processing Systems (NeurIPS 2016)*.
18. **Yan Yan**, Zhongwen Xu, Ivor W. Tsang, Guodong Long, Yi Yang. Robust Semi-supervised Learning through Label Aggregation. In *Thirtieth Conference on Artificial Intelligence (AAAI 2016)*.
19. Mingkui Tan, **Yan Yan**, Li Wang, Anton Van Den Hengel, Ivor W. Tsang, Qinfeng (Javen) Shi. Learning Sparse Confidence-Weighted classifier on Very High Dimensional Data. In *Thirtieth Conference on Artificial Intelligence (AAAI 2016)*.
20. **Yan Yan**, Mingkui Tan, Ivor W. Tsang, Yi Yang, Chengqi Zhang and Qinfeng (Javen) Shi. Scalable Maximum Margin Matrix Factorization by Active Riemannian Subspace Search. In *International Joint Conference on Artificial Intelligence (IJCAI 2015)*, 3988-3994.
21. Joey Tianyi Zhou, Sinno Jialin Pan, Ivor W. Tsang and **Yan Yan**. Hybrid Heterogeneous Transfer Learning through Deep Learning. In *Twenty-Eighth Conference on Artificial Intelligence (AAAI 2014)*, 2213-2219.

## Journal Publications

1. Zhishuai Guo, Zhuoning Yuan, **Yan Yan**, Tianbao Yang. "Fast Objective and Duality Gap Convergence for Non-convex Strongly-concave Min-max Problems." *Journal of Machine Learning Research (JMLR)*, 24(148):1-63, 2023.
2. Taha Belkhouja, **Yan Yan**, Janardhan Doppa. "Out-of-Distribution Detection in Time-Series Domain: A Novel Seasonal Ratio Scoring Approach." *ACM Transactions on Intelligent Systems And Technology (ACM TIST)*. Accepted, 2023.
3. Taha Belkhouja, **Yan Yan** and Jana Doppa, "Dynamic Time Warping Based Adversarial Framework for Time-Series Domain" in *IEEE Transactions on Pattern Analysis & Machine Intelligence*, vol. 45, no. 06, pp. 7353-7366, 2023. doi: 10.1109/TPAMI.2022.3224754.
4. Zhibin Hu, Jianchun Wang, **Yan Yan**, Peilin Zhao, Jian Chen and Jin Huang. Neural graph personalized ranking for Top-N Recommendation *Knowledge-Based Systems (KBS)*, 213 (2021): 106426.
5. Yu Wu, Yutian Lin, Xuanyi Dong, **Yan Yan**, Wei Bian and Yi Yang. "Progressive Learning for Person Re-Identification With One Example." *IEEE Transactions on Image Processing (TIP)*, vol. 28, no. 6, pp. 2872 - 2881, Jun. 2019.
6. Xuanyi Dong, **Yan Yan**, Mingkui Tan, Yi Yang and Ivor W. Tsang. "Late Fusion via Subspace Search With Consistency Preservation." *IEEE Transactions on Image Processing (TIP)*, vol. 28, no. 1, pp. 518-528, Jan. 2019.

7. **Yan Yan**, Mingkui Tan, Ivor W. Tsang, Yi Yang, Qinfeng Shi and Chengqi Zhang. “Fast and Low Memory Cost Matrix Factorization: Algorithm, Analysis and Case Study.” *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, vol. 32, no. 2, pp. 288-301, 1 Feb. 2020, doi: 10.1109/TKDE.2018.2882197.
8. **Yan Yan**, Feiping Nie, Wen Li, Chenqiang Gao, Yi Yang, Dong Xu. “Image Classification by Cross-Media Active Learning with Privileged Information.” *IEEE Transactions on Multimedia (TMM)*, vol. 18, no. 12 (2016): 2494-2502.
9. Yahong Han, Yi Yang, **Yan Yan**, Zhigang Ma, Nicu Sebe and Xiaofang Zhou. “Semi-Supervised Feature Selection via Spline Regression for Video Semantic Recognition.” *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, vol. 26, no. 2 (2015): 252-264.
10. Xingzhong Du, **Yan Yan**, Pingbo Pan, Guodong Long and Lei Zhao. “Multiple Graph Unsupervised Feature Selection.” *Signal Processing* 120 (2016): 754-760.
11. **Yan Yan**, Gaowen Liu, Sen Wang, Jian Zhang and Kai Zheng. “Graph-Based Clustering and Ranking for Diversified Image Search.” *Multimedia Systems* 23, no. 1 (2017): 41-52.
12. Pufeng Du, Yang Tian and **Yan Yan**. “Subcellular localization prediction for human internal and organelle membrane proteins with projected gene ontology scores.” *Journal of Theoretical Biology* 313 (2012): 61-67.

### Book Chapter

1. **Yan Yan**. “Machine Learning Fundamentals.” *Machine Learning in Chemical Safety and Health: Fundamentals with Applications* (2022): 19. Editor: Qingsheng Wang , Changjie Cai.
2. **Yan Yan**. “Machine Learning Fundamentals.” *Encyclopedia of Smart Agriculture Technologies* (2023). Editor: Qin Zhang. DOI: <https://doi.org/10.1007/978-3-030-89123-7>.

### Workshop Papers

1. **Yan Yan**, Yi Xu, Qihang Lin, Wei Liu, Tianbao Yang. Sharp Analysis of Simple Restarted Stochastic Gradient Methods for Min-Max Optimization. *Bridging Game Theory and Deep Learning Workshop NeurIPS 2019 (Smooth Games Optimization and Machine Learning Series)*.

### Technical Reports

1. **Yan Yan**, Yi Xu, Qihang Lin, Lijun Zhang, Tianbao Yang. Stochastic Primal-Dual Algorithms with Faster Convergence than  $1/\sqrt{T}$  for Problems without Bilinear Structure. *arXiv preprint arXiv:1904.10112(2019)*.

## TEACHING

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- CPTS 434/534, Neural Network Design and Application  
Washington State University  
Spring 2021, Spring 2022, Spring 2023
- CPTS 580, Advanced Topics in Computer Science (Computer Vision)  
Washington State University  
Fall 2022, Fall 2023
- CPTS 223, Advanced Data Structures C/C++.  
Washington State University  
Fall 2021, Fall 2022, Fall 2023

## PROFESSIONAL SERVICE

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### Senior Program Committee:

- The 38th AAAI Conference on Artificial Intelligence (AAAI 2024)
- The 37th AAAI Conference on Artificial Intelligence (AAAI 2023)
- The 32nd International Joint Conference on Artificial Intelligence (IJCAI 2023)

### Program Committee:

- The 37th Conference on Neural Information Processing Systems (NeurIPS 2023)

- The 40th International Conference on Machine Learning (ICML 2023)
- The 39th International Conference on Machine Learning (ICML 2022)
- The 35th Conference on Neural Information Processing Systems (NeurIPS 2021)
- The 30th International Joint Conference on Artificial Intelligence (IJCAI 2021)
- The 35th AAAI Conference on Artificial Intelligence (AAAI 2021).
- The 34th Conference on Neural Information Processing Systems (NeurIPS 2020).
- The 34th AAAI Conference on Artificial Intelligence (AAAI 2020).
- The 28th International Joint Conference on Artificial Intelligence (IJCAI 2019).
- The 33rd AAAI Conference on Artificial Intelligence (AAAI 2019).
- The 27th International Joint Conference on Artificial Intelligence (IJCAI 2018).

#### **Reviewer:**

- Journal of Machine Learning Research (JMLR)
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- Journal of Artificial Intelligence Research (JAIR)
- IEEE Transactions on Emerging Topics in Computational Intelligence
- Mathematics of Operations Research
- Knowledge-Based Systems (KBS)
- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- IEEE Transactions on Multimedia (TMM)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- Pattern Recognition (PR)
- Multimedia Tools and Applications
- Neurocomputing

## **TECHNICAL PRESENTATIONS**

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### **Oral or video presentation**

- “Probabilistically Robust Conformal Prediction.” In *the 39th Conference on Uncertainty in Artificial Intelligence* (UAI 2023).
- “Improving Uncertainty Quantification of Deep Classifiers via Neighborhood Conformal Prediction: Novel Algorithm and Theoretical Analysis”. In *Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI 2023)*.
- “Training Robust Deep Models for Time-Series Domain: Novel Algorithms and Theoretical Analysis ”. In *Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI 2022)*.
- “Optimal Epoch Stochastic Gradient Descent Ascent Methods for Min-Max Optimization”. In *Thirty-fourth Conference on Neural Information Processing Systems (NeurIPS) 2020*.
- “Stochastic Optimization for Non-convex Inf-Projection Problems”. In *Thirty-seventh International Conference on Machine Learning (ICML) 2020*.
- “A Simple and Effective Framework for Pairwise Deep Metric Learning ”. In *European Conference on Computer Vision (ECCV) 2020*.
- “Adversarial Localized Energy Network for Structured Prediction”. In *Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI) 2020*.

- “Stagewise Training Accelerates Convergence of Testing Error Over SGD”. In *Thirty-third Conference on Neural Information Processing Systems (NeurIPS) 2019*.
- “Multi-Level Visual-Semantic Alignments with Relation-Wise Dual Attention Network for Image and Text Matching”. In *International Joint Conference on Artificial Intelligence (IJCAI) 2019*.
- “A Unified Analysis of Stochastic Momentum Methods for Deep Learning”. In *International Joint Conference on Artificial Intelligence (IJCAI) 2018*.
- “A Framework of Online Learning with Imbalanced Streaming Data”. In *Thirty-First AAAI Conference on Artificial Intelligence (AAAI) 2017*.
- “Homotopy Smoothing for Non-Smooth Problems with Lower Complexity than  $O(1/\epsilon)$ ”. In *Neural Information Processing Systems (NeurIPS) 2016*.
- “Robust Semi-supervised Learning through Label Aggregation”. In *Thirtieth AAAI Conference on Artificial Intelligence (AAAI) 2016*.
- “Scalable Maximum Margin Matrix Factorization by Active Riemannian Subspace Search”. In *International Joint Conference on Artificial Intelligence (IJCAI) 2015*”.

## PROFESSIONAL MEMBERSHIPS

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- Member, Institute of Electrical and Electronics Engineers (IEEE)
- Member, Association for the Advancement of Artificial Intelligence (AAAI)