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## 简介

张娅, 女, 上海交通大学首席研究员、国家“万人计划”科技创新领军人才。清华大学学士、美国宾州州立大学博士。长期致力于人工智能算法及其在多媒体和医疗影像的应用研究。曾任堪萨斯大学助理教授 (tenure-track)、雅虎实验室资深研发经理, 2010 归国进入上海交通大学任教。兼任上海交通大学数字医学研究院副院长, 上海人工智能实验室智慧医疗研究中心执行主任, 超高清视音频制播呈现国家重点实验室首席人工智能科学家。在人工智能和智慧医疗等方向主持和参与多项国家级和省部级项目, 担任科技部 863 计划项目首席专家和科技创新 2030 重大项目负责人。在国际高质量期刊和会议上发表学术论文 190 余篇, Google Scholar 引用 9000 余次。获上海市技术发明一等奖 (2022)、中国电影电视技术学会科学技术奖一等奖 (2021)、欧洲信号处理学会期刊年度最佳论文奖 (2019)、中国人工智能学会优秀博士学位论文指导教师 (2018)。

## 工作经历

2022/05 – 今	上海人工智能实验室智慧医疗中心 执行主任、教授
2010/03 – 今	上海交通大学未来媒体网络协同创新中心, 首席研究员、博士生导师
2022/01 – 今	上海交通大学数字医学研究院副院长
2006/10 – 2010/03	美国雅虎实验室, 研发经理
2005/08 – 2007/08	美国堪萨斯大学电子工程与计算机科学系, 助理教授
2005/05 – 2005/08	美国雅虎实验室, 暑期实习生
2001/05 – 2005/05	美国宾州州立大学信息科学与技术学院, 研究与教学助理
2004/05 – 2004/08	美国劳伦斯伯克利国家实验室, 暑期实习生

## **教育经历**

- 2000/08 - 2005/08 美国宾州州立大学, 博士  
1996/09 - 2000/07 清华大学, 学士

## **奖励**

- 上海市技术发明一等奖 (2022)
- 中国电影电视技术学会科学技术奖一等奖(2021)
- 2019 EURASIP Best Paper Award for the SPEECH COMMUNICATION Journal (2019)
- 中国人工智能学会优秀博士论文指导老师 (2018)
- 广播影视科技创新奖二等奖(2017)
- Best 10% Paper Award, VCIP (2016)

## **主要科研项目**

- 科技部科技创新 2030 “新一代人工智能”重大项目“群体协同的医疗通用模型构建方法及应用”，2023/01-2025/12（主持）
- 上海市“科技创新行动计划”人工智能科技支撑专项项目“动态开放环境下的多模态鲁棒决策系统关键技术及原型验证”，2022.07-2024.06（主持）
- 华为公司委托科研项目“隐私保护下的医疗多模态预训练大模型”，2021.11-2022.11（主持）
- 超高清视音频制播呈现国家重点实验室开放课题“面向新闻素材的视频资料多维智能识别与解析”，2020.12-2021.12（主持）
- 中央广播电视总台委托科研项目“面向央视专区与APP的多源大数据挖掘及推荐技术研发”，2017.8-2018.7（主持）
- 中央广播电视总台委托科研项目“电视及新媒体在有线电视网分发服务质量及其信息管理研究”，2016.4-2017.3（主持）
- 国家高技术研究发展计划（863计划）课题，编号：2015AA015801，“数据驱动的媒体内容动态自组织及封装技术研究”，2015.1-2017.12（项目首席专家）
- 上海市科委项目，编号：14511107500，“基于交通大数据的跨终端动态导航系统”，2014.06-2016.06（主持）
- 国家高技术研究发展计划（863计划）课题，编号：2013AA020418，“区域医疗卫生信息互通共享关键技术与新医疗模式示范工程的研究”，2013.1-2015.12（参与）
- 国家自然科学基金青年面上项目，编号：61003107，“面向搜索排序的主动学习理论”，

2011.1-2013.12 (主持)

- “核高基” 国家科技重大专项课题, 编号: 2011ZX01042-001-001, “基于框计算的新一代搜索引擎与浏览器”, 2011.1-2011.12 (参与)
- 上海市青年科技启明星计划资助项目, 编号: 11QA1403500, “个性化中文微博搜索排序技术研究”, 2011.4-2013.3 (主持)
- 上海市人才发展基金项目, 编号: 2010002, “多模态信息的智能分析、融合及检索的理论和应用研究”, 2011.1-2013.12 (主持)
- 国家高技术研究发展计划 (863 计划) 课题, 编号: 2011AA01A107, “面向三网融合的集成播控平台研究与示范” 课题, 2011.1-2013.12 (参与)

## **代表性学术论文**

期刊论文:

- [1] B. Tang, Y. Zhong, C. Xu, W. Wu, U. Neumann, Y. Zhang, S. Chen, Y. Wang, "Collaborative Uncertainty Benefits Multi-Agent Multi-Modal Trajectory Forecasting", IEEE Transactions on Pattern Analysis and Machine Intelligence, early access.
- [2] X. Chen, Y. Pan, I. Tsang, Y. Zhang\*, "Learning node representations against perturbations", Pattern Recognition, Volume 145, January 2024, 109976.
- [3] H. Zheng, X. Chen, J. Yao, H. Yang, C. Li, Y. Zhang, H. Zhang, I. Tsang, J. Zhou, M. Zhou, "Contrastive Attraction and Contrastive Repulsion for Representation Learning", TMLR, 2023.
- [4] X. Zhang, C. Wu, Y. Zhang, W. Xie\*, Y. Wang\*, "Knowledge-enhanced visual-language pre-training on chest radiology images", Nature Communications volume 14, Article number: 4542 (2023) .
- [5] Q. Xu, R. Zhang, Y. Zhang\*, Y. Wu, Y. Wang, "Federated Adversarial Domain Hallucination for Privacy-preserving Domain Generalization", IEEE Transactions on Multimedia, early access.
- [6] J. Yao, B. Han, Z. Zhou, Y. Zhang\*, I. Tsang, "Latent Class-Conditional Noise Model", IEEE Transactions on Pattern Analysis and Machine Intelligence, early access.
- [7] Q. Xu, R. Zhang, Z. Fan, Y. Wang, Y. Wu, Y. Zhang\*, "Fourier-based Augmentation with Applications to Domain Generalization", Pattern Recognition, early access.
- [8] X. Zhang, W. Xie, C. Huang, Y. Zhang, X. Chen, Q. Tian and Y. Wang\*, "Self-supervised Tumor Segmentation with Sim2Real Adaptation", IEEE Journal of Biomedical and Health Informatics, early access.
- [9] C. Ju, P. Zhao, S. Chen, Y. Zhang\*, X. Zhang, Y. Wang, Q. Tian, "Adaptive Mutual Supervision for Weakly-Supervised Temporal Action Localization", IEEE Transactions on Multimedia, early access.
- [10] C. Wu, F. Chang, X. Su, Z. Wu, Y. Wang, L. Zhu\*, Y. Zhang\*, "Integrating features from lymph node stations for metastatic lymph node detection", Computerized Medical Imaging and Graphics, Volume 101, October 2022, 102108.
- [11] Y. Zhou, S. Sun, Q. Liu, X. Xu, Y. Zhang\*, Y. Zhang\*, "TED: Two-Stage Expert-Guided Interpretable Diagnosis Framework for Microvascular Invasion in Hepatocellular Carcinoma", Medical Image Analysis, Volume 82, November 2022, 102575.
- [12] C. Huang, Q. Xu, Y. Wang\*, Y. Wang, Y. Zhang\*, "Self-Supervised Masking for Unsupervised Anomaly Detection and Localization", IEEE Transactions on Multimedia, early access.

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- [13] M. Li, S. Chen\*, Y. Shen, G. Liu, I. Tsang, Y. Zhang\*, "Online Multi-Agent Forecasting with Interpretable Collaborative Graph Neural Networks", *IEEE Transactions on Neural Networks and Learning Systems*, early access (ESI highly cited paper).
- [14] X. Chen, Y. Zhang\*, I. Tsang, Y. Pan, J. Su, "Towards Equivalent Transformation of User Preferences in Cross Domain Recommendation", *ACM Transactions on Information Systems (TOIS)*, 41(1), Article No. 14, pp 1-31, 2023.
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- [16] J. Liu, Y. Zhao, S. Chen, Y. Zhang\*, "A 3D Mesh-Based Lifting-and-Projection Network for Human Pose Transfer", *IEEE Transactions on Multimedia*, 24:4314-4327, 2022.
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- [23] C. Ma, Q. Xu, X. Wang, B. Jin, X. Zhang, Y. Wang, Y. Zhang\*, "Boundary-aware Supervoxel-level Iteratively Refined Interactive 3D Image Segmentation with Multi-agent Reinforcement Learning", *IEEE Transactions on Medical Imaging*, 40(10):2563-2574, 2021.
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## 会议论文:

- [1] Z. Zhou, J. Yao\*, F. Hong, B. Han, Y. Zhang, Y. Wang\*, "Combating Representation Learning Disparity with Geometric Harmonization", NeurIPS 2023, accepted.
- [2] Z. Fan, R. Zhang, J. Yao, B. Han, Y. Zhang, Y. Wang\*, "Federated Learning with Bilateral Curation for Partially Class-Disjoint Data", NeurIPS 2023, accepted.
- [3] C. Ma, Y. Yang, C. Ju, F. Zhang, Y. Zhang, Y. Wang\*, "Open-Vocabulary Semantic Segmentation via Attribute Decomposition-Aggregation", NeurIPS 2023, accepted.
- [4] F. Zhang, T. Zhou, B. Li, H. He, C. Ma, T. Zhang, J. Yao\*, Y. Zhang, Y. Wang, "Uncovering Prototypical Knowledge for Weakly Open-Vocabulary Semantic Segmentation", NeurIPS 2023, accepted.
- [5] S. Wei, Y. Wei, Y. Hu, Y. Lu, Y. Zhong, S. Chen, Y. Zhang, "Robust Asynchronous Collaborative 3D Detection via Bird's Eye View Flow", NeurIPS 2023, accepted.
- [6] Y. Liu, J. Yao, Y. Zhang, Y. Wang, W. Xie, "Zero-shot Composed Text-Image Retrieval", BMVC 2023, accepted.
- [7] H. Wu, X. Zhang, W. Xie, Y. Zhang, Y. Wang, "Boost Video Frame Interpolation via Motion Adaptation", BMVC 2023, accepted.
- [8] C. Wu#, X. Zhang#, Y. Zhang, W. Xie\*, Y. Wang\*, "MedKLIP: Medical Knowledge Enhanced Language-Image Pre-Training for X-ray Diagnosis", ICCV 2023, accepted.
- [9] Z. Li, Q. Zhou, X. Zhang, Y. Zhang, W. Xie\*, Y. Wang\*, "Guiding Text-to-Image Diffusion Model Towards Grounded Generation", ICCV 2023, accepted.
- [10] Q. Xu, W. Mao, J. Gong, C. Xu, S. Chen\*, W. Xie, Y. Zhang, Y. Wang\*, "Joint-Relation Transformer for Multi-person Motion Prediction", ICCV 2023, accepted.
- [11] A. Jiang#, C. Huang#, Q. Cao, S. Wu, Z. Zi, K. Chen, Y. Zhang, Y. Wang\*, "Multi-scale Cross-restoration Framework for Electrocardiogram Anomaly Detection", MICCAI 2023, accepted.
- [12] W. Lin, Z. Zhao, X. Zhang, C. Wu, Y. Zhang, W. Xie\*, Y. Wang\*, "PMC-CLIP: Contrastive Language-Image Pre-training using Biomedical Documents", MICCAI 2023, accepted.
- [13] R. Zhang, Z. Fan, Q. Xu, J. Yao\*, Y. Zhang, Y. Wang\*, "GRACE: Enhancing Federated Learning for Medical Imaging with Generalized and Personalized Gradient Correction", MICCAI 2023, accepted.
- [14] Z. Wang, X. Zhang, Z. Zhang, H. Zheng, Y. Zhang, M. Zhou, Y. Wang, "DR2: Diffusion-based Robust Degradation Remover for Blind Face Restoration", CVPR 2023.
- [15] C. Ju, K. Zheng, J. Liu, P. Zhao, Y. Zhang, J. Chang, Q. Tian, Y. Wang\*, "Distilling Vision-Language Pre-training to Collaborate with Weakly-Supervised Temporal Action Localization", CVPR 2023.
- [16] R. Zhang, Q. Xu, J. Yao, Y. Zhang\*, Q. Tian, Y. Wang\*, "Federated Domain Generalization with Generalization Adjustment", CVPR 2023.
- [17] Z. Lyu, J. Wang, Y. An, Y. Zhang, D. Lin, B. Dai, "Controllable Mesh Generation Through Sparse Latent Point Diffusion Models", CVPR 2023.
- [18] M. Chen, L. Xing, Y. Wang\*, Y. Zhang\*, "Enhanced Multimodal Representation Learning with Cross-modal KD", CVPR 2023.
- [19] Y. Qin, H. Zheng, J. Yao\*, M. Zhou, Y. Zhang, "Class-Balancing Diffusion Models", CVPR 2023.
- [20] F. Hong, J. Yao\*, Z. Zhou, Y. Wang\*, Y. Zhang, "Long-Tailed Partial Label Learning via Dynamic Rebalancing", ICLR 2023.

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- [21] Q. Zhou, Z. Li, W. Xie\*, X. Zhang\*, Y. Zhang, Y. Wang, "A Simple Plugin for Transforming Images to Arbitrary Scales", BMVC 2022.
- [22] Z. Zhao, T. Zhang, W. Xie\*, Y. Wang\*, Y. Zhang, "K-Space Transformer for Undersampled MRI Reconstruction", BMVC 2022.
- [23] C. Ma, Y. Yang, Y. Wang\*, Y. Zhang, W. Xie, "Open-vocabulary Semantic Segmentation with Frozen Vision-Language Models", BMVC 2022.
- [24] Z. Fan, Y. Wang\*, J. Yao\*, L. Lyu, Y. Zhang, and T. Qi, "FedSkip: Combatting Statistical Heterogeneity with Federated Skip Aggregation", ICDM 2022.
- [25] C. Huang, H. Guan, A. Jiang, Y. Zhang\*, M. Spratling, Y. Wang\*, "Registration based Few-Shot Anomaly Detection", ECCV 2022 (Oral).
- [26] M. Li, S. Chen\*, Z. Zhang, L. Xie, Q. Tian, Y. Zhang\*, "Skeleton-Parted Graph Scattering Networks for 3D Human Motion Prediction", ECCV 2022.
- [27] C. Ju, T. Han, K. Zheng, Y. Zhang\*, W. Xie\*, "Prompting Visual-Language Models for Efficient Video Understanding", ECCV 2022.
- [28] J. Liu, C. Ju, W. Xie\*, Y. Zhang\*, "Exploiting Transformation Invariance and Equivariance for Self-supervised Sound Localisation", ACM MM 2022, pp. 3742–3753.
- [29] Z. Zhou, J. Yao\*, Y. Wang\*, B. Han, Y. Zhang, "Contrastive Learning with Boosted Memorization", ICML 2022.
- [30] F. Chang, C. Wu, Y. Wang, Y. Zhang\*, X. Chen, Q. Tian, "Boundary-Enhanced Self-Supervised Learning for Brain Structure Segmentation", MICCAI 2022, pp. 14–23.
- [31] W. Liu, C. Ma, Y. Yang, W. Xie, Y. Zhang\*, "Transforming the Interactive Segmentation for Medical Imaging", MICCAI 2022, pp. 704–713.
- [32] B. Guo, X. Zhang\*, H. Wu, Y. Wang, Y. Wang\*, Y. Zhang, "LAR-SR: A Local Autoregressive Model for Image Super Resolution", CVPR 2022, pp. 1909-1918.
- [33] Y. Huang, X. Zhang\*, Y. Fu, S. Chen, Y. Zhang, Y. Wang\*, D. He, "Task Decoupled Framework for Reference-based Super-Resolution", CVPR 2022, pp. 5931-5940.
- [34] C. Xu, M. Li, Z. Ni, Y. Zhang, S. Chen, "GroupNet: Multiscale Hypergraph Neural Networks for Trajectory Prediction with Relational Reasoning", CVPR 2022, 6498-6507.
- [35] B. Tang, Y. Zhong, U. Neumann, G. Wang, Y. Zhang, S. Chen\*, "Collaborative Uncertainty in Multi-Agent Trajectory Forecasting", NeurIPS 2021.
- [36] C. Ju, P. Zhao, S. Chen, Y. Zhang\*, Y. Wang, Q. Tian, "Divide and Conquer for Single-frame Temporal Action Localization", ICCV 2021, pp. 13455-13464.
- [37] T. Cao, L. Du, X. Zhang, S. Chen, Y. Zhang, Y. Wang, "CaT: Weakly Supervised Object Detection with Category Transfer", ICCV 2021, pp. 3070-3079.
- [38] X. Zhang, S. Feng, Y. Zhou, Y. Zhang\*, Y. Wang, "SAR: Scale-Aware Restoration Learning for 3D Tumor Segmentation", MICCAI 2021, pp. 124-133.
- [39] M. Hu, T. Song, Y. Gu, J. Chen, X. Luo, Y. CHen, S. Zhang, Y. Zhang, "Fully Test-time Adaptation for Image Segmentation", MICCAI 2021, pp. 251-260.
- [40] J. Chen, K. Yan, Y. Zhang, Y. Tang, X. Xu, Q. Liu, S. Sun, L. Huang, J. Xiao, A. Yuille, Y. Zhang, L. Lu, "Sequential Learning on Liver Tumor Boundary Semantics and Prognostic Biomarker Mining", MICCAI 2021, pp. 765-774.

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- [44] M. Li, S. Chen\*, Y. Zhang\*, I. Tsang, "Graph Cross Networks with Vertex Infomax Pooling", NeurIPS 2020 (Oral).
- [45] K. Du, Y. Zhang\*, H. Guan, Q. Tian, Y. Wang, S. Cheng, J. Lin, "FTL: A universal framework for training low-bit DNNs via Feature Transfer", ECCV 2020.
- [46] P. Zhao, L. Xie, C. Ju, Y. Zhang\*, Y. Wang, Q. Tian, "Bottom-Up Temporal Action Localization with Mutual Regularization", ECCV 2020.
- [47] Y. Xue, S. Feng, Y. Zhang\*, X. Zhang, Y. Wang, "Dual-task Self-supervision for Cross-Modality Domain Adaptation", MICCAI 2020, pp. 408-417.
- [48] M. Hu, M. Mailard\*, Y. Zhang\*, T. Ciceri, G. L. Barbera, I. Bloch, P. Gori, "Knowledge distillation from multi-modal to mono-modal segmentation networks", MICCAI 2020, pp. 773-781.
- [49] M. Li, S. Chen\*, Y. Zhao, Y. Zhang\*, Y. Wang, Q. Tian, "Dynamic Multiscale Graph Neural Networks for 3D Skeleton-Based Human Motion Prediction", CVPR 2020 (Oral), pp. 214-223. (Source code)
- [50] Y. Hu, S. Chen\*, Y. Zhang\*, X. Gu, "Collaborative Motion Prediction via Neural Motion Message Passing", CVPR 2020 (Oral), pp. 6319-6328.
- [51] X. Liao, W. Li, Q. Xu, X. Wang\*, B. Jin\*, X. Zhang, Y. Wang, Y. Zhang\*, "Iteratively-Refined Interactive 3D Medical Image Segmentation with Multi-Agent Reinforcement Learning", CVPR 2020, pp. 9394-9402
- [52] H. Wu, J. Yao, J. Wang, Y. Chen, Y. Zhang, Y. Wang, "Collaborative Label Correction via Entropy Thresholding", ICDM 2019, pp. 1390-1395.
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- [54] M. Li, S. Chen, X. Chen, Y. Zhang, Y. Wang, Q. Tian, "Actional-Structural Graph Convolutional Networks for Skeleton-based Action Recognition", CVPR 2019, pp. 3595-3603.
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- [57] B. Han, J. Yao, G. Niu, M. Zhou, I. Tsang, Y. Zhang, M. Sugiyama, "Masking: A New Perspective of Noisy Supervision", NeurIPS 2018: 5841-5851.
- [58] Y. Wang, L. Xie, S. Qiao, Y. Zhang, W. Zhang, A. Yuille, "Multi-Scale Spatially-Asymmetric Recalibration for Image Classification", ECCV 2018, pp. 523-539.
- [59] J. Wang, J. Yao, Y. Zhang, R. Zhang, "Collaborative Learning for Weakly Supervised Object Detection", IJCAI-ECAI-2018, pp. 971-977.
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- [61] Y. Li, M. Li, Y. Zhang, Y. Wang, "Unsupervised Local Facial Attributes transfer Using Dual Discriminative Adversarial Networks", ICME 2018.

- [62] Y. Wang, L. Xie, C. Liu, S. Qiao, Y. Zhang, W. Zhang, Q. Tian, A. Yuille, "SORT: Second-Order Response Transform for Visual Recognition", ICCV 2017, pp. 1359-1368.
- [63] Y. Zhang, Y. Wang, S. Zhou, W. Cai, Y. Zhang, "From Theory to Practice: Efficient Active Cost-sensitive Classification with Expected Error Reduction", SDM 2017, pp. 153-161.

## **主要专利**

- [1] Method and apparatus for using B measures to learn balanced relevance functions from expert and user judgments. K. Chen, Y. Zhang, Z. Zheng, H. Zha and G. Sun, US patent 7,685,078.
- [2] Identifying Regional Sensitive Queries in Web Search. Y. Zhang, S. Vadrevu, B. Tseng, G. Sun, and X. Li, US patent 7,949,672.
- [3] System and method for cross domain learning for data augmentation. B. Long, S. Lamkhede, S. Vadrevu, Y. Zhang, B. Tseng, US patent 8,332,334.
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