

Dongdong Chen

Ph.D, Senior Researcher at Microsoft

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Short Biography

Dongdong Chen is a senior researcher at Microsoft Cloud & AI. He has published more than 50 papers in top conferences and journals, such as CVPR/ICCV/ECCV/TIP/T-PAMI/IJCV. His research interests focus on large-scale multi-modality and single-modality pretraining, deep generative models (e.g., GAN, Image2Image translation), general representation learning (e.g., fundamental network structure design) and AI security (e.g., adversarial learning, model IP protection). He is the reviewer of many top conferences (including CVPR, ICCV, ECCV, AAAI, NeurIPs, Siggraph, PRCV, ICME, ICIG, and ACCV) and top journals (TPAMI, IJCV, TIP, TMM, TCSVT, MVAP, JSTSP). He has reviewed more than 200 papers and was selected as the outstanding reviewer of CVPR 2020, CVPR 2021 and ICCV 2021. He is also the senior program committee of AAAI 2022, area chair of CVPR 2022 and the associate editor of Pattern Recognition.

Education

- 09/2014– **PhD of Engineering in Information and Communication Engineering**, *University of Science and Technology of China*, Hefei, China, Thesis topic: Research on Visual Media Style Transfer.
- 06/2019
- 09/2010– **Bachelor of Electronic Engineering and Information Science**, *University of Science and Technology of China*, Hefei, China, GPA – 3.98/4.3.
- 06/2014

Experience

- 05/2019– **Senior Researcher**, *Microsoft Cloud & AI*, Redmond.
- present Member of the Cognitive Research Team. Research in large-scale multi-modality and single-modality pretraining and fundamental vision tasks. Representative multi-modality projects include **"Florence"** (large-scale image-text pretraining), **"VQDiffusion"** (large-scale text-to-image generation as OpenAI GLIDE and DaLLE), **"FaRL"** (large-scale image-text pretraining for general face representation learning) and ongoing **Video multi-modality pretraining**
- 04/2018– **Research Intern**, *Microsoft Research*, Redmond, United States.
- 09/2018 Member of the Computer Vision group, supervised by Gang Hua. Research in text detection and recognition, low-level vision.
- 11/2015– **Research Intern**, *Microsoft Research Asia*, Beijing, China.
- 03/2018 Member of the Visual Computing group, supervised by Jian Sun, Gang Hua, Lu Yuan. Research in text and logo detection, neural style transfer, color transfer, and general image generation tasks.
- 06/2013– **Research Intern**, *Microsoft Research Asia*, Beijing, China.
- 08/2014 Member of the Visual Computing Group, supervised by Yi Ma. Research in 3D Streetview maps building, moving points removal.

Large-Scale Pretraining:

- ★ Lu Yuan, **Dongdong Chen**, Yi-Ling Chen, Noel Codella, Xiyang Dai, Jianfeng Gao, Houdong Hu, Xuedong Huang, Boxin Li, Chunyuan Li, Ce Liu, Mengchen Liu, Zicheng Liu, Yumao Lu, Yu Shi, Lijuan Wang, Jianfeng Wang, Bin Xiao, Zhen Xiao, Jianwei Yang, Michael Zeng, Luwei Zhou, Pengchuan Zhang, Florence: A New Foundation Model for Computer Vision *arXiv:2111.11432*.
- ★ Rui Wang, **Dongdong Chen**, Zuxuan Wu, Yinpeng Chen, Xiyang Dai, Mengchen Liu, Yu-Gang Jiang, Luwei Zhou, Lu Yuan, BEVT: BERT Pretraining of Video Transformers *arXiv:2112.01529*.
- ★ Xiaoyi Dong, Jianmin Bao, Ting Zhang, **Dongdong Chen**, Weiming Zhang, Lu Yuan, Dong Chen, Fang Wen, Nenghai Yu, PeCo: Perceptual Codebook for BERT Pre-training of Vision Transformers *arXiv:2111.12710*.
- ★ Shuyang Gu, Dong Chen, Jianmin Bao, Fang Wen, Bo Zhang, **Dongdong Chen**, Lu Yuan, Baining Guo, Vector Quantized Diffusion Model for Text-to-Image Synthesis *arXiv:2111.14822*.
- ★ Yinglin Zheng, Hao Yang, Ting Zhang, Jianmin Bao, **Dongdong Chen**, Yangyu Huang, Lu Yuan, Dong Chen, Ming Zeng, Fang Wen, General Facial Representation Learning in a Visual-Linguistic Manner *arXiv:2112.03109*.
- ★ Suichan Li*, **Dongdong Chen***, Yinpeng Chen, Lu Yuan, Lei Zhang, Qi Chu, Bin Liu, Nenghai Yu, Unsupervised Finetuning, *arXiv:2110.09510*. (*joint first author)
- ★ Dengpan Fu, **Dongdong Chen**, Jianmin Bao, Hao Yang, Lu Yuan, Lei Zhang, Houqiang Li, Dong Chen, Unsupervised Pre-training for Person Re-identification, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2021)*.
- ★ Suichan Li*, **Dongdong Chen***, Yinpeng Chen, Lu Yuan, Lei Zhang, Qi Chu, Bin Liu, Nenghai Yu, Improve Unsupervised Pretraining for Few-label Transfer, *International Conference on Computer Vision (ICCV 2021)*. (*joint first author)

Generative Models:

- ★ Tianyi Wei, **Dongdong Chen**, Wenbo Zhou, Jing Liao, Zhentao Tan, Lu Yuan, Weiming Zhang, Nenghai Yu, HairCLIP: Design Your Hair by Text and Reference Image, *arXiv:2112.05142*
- ★ Ziyu Wan, Jingbo Zhang, **Dongdong Chen**, Jing Liao, High-Fidelity Pluralistic Image Completion with Transformers, *International Conference on Computer Vision (ICCV 2021)*.
- ★ Zhentao Tan, Menglei Chai, **Dongdong Chen**, Jing Liao, Qi Chu, Bin Liu, Gang Hua, Nenghai Yu, Diverse Semantic Image Synthesis via Probability Distribution Modeling, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2021)*.
- ★ Tianyi Wei, **Dongdong Chen**, Wenbo Zhou, Jing Liao, Hanqing Zhao, Weiming Zhang, Nenghai Yu, Improved Image Matting via Real-time User Clicks and Uncertainty Estimation, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2021)*.

- ★ Zhentao Tan*, **Dongdong Chen***, Qi Chu, Menglei Chai, Jing Liao, Mingming He, Lu Yuan, Gang Hua, Nenghai Yu, Efficient Semantic Image Synthesis via Class-Adaptive Normalization, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI 2021)*. (*joint first author)
- ★ Shuquan Ye, *Dongdong Chen*, Songfang Han, Ziyu Wan, Jing Liao, Meta-PU: An Arbitrary-Scale Upsampling Network for Point Cloud, *IEEE Transactions on Visualization and Computer Graphics (TVCG 2021)*.
- ★ **Dongdong Chen**, Qingnan Fan, Jing Liao, Angelica Aviles-Rivero, Lu Yuan, Nenghai Yu, Gang Hua, Controllable Image Processing via Adaptive FilterBank Pyramid, *IEEE Transactions on Image Processing (TIP 2020)*.
- ★ Zhentao Tan, Menglei Chai, **Dongdong Chen**, Jing Liao, Qi Chu, Lu Yuan, Sergey Tulyakov, Nenghai Yu, MichiGAN: multi-input-conditioned hair image generation for portrait editing, *ACM Transactions on Graphics (TOG 2020)*.
- ★ **Dongdong Chen**, Lu Yuan, Jing Liao, Nenghai Yu, Gang Hua, Explicit Filterbank Learning for Neural Image Style Transfer and Image Processing, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI 2020)*.
- ★ Daniel Heydecker, Georg Maierhofer, Angelica I Aviles-Rivero, Qingnan Fan, **Dongdong Chen**, Carola-Bibiane Schönlieb, Sabine Süsstrunk, Mirror, Mirror, on the Wall, Who's Got the Clearest Image of Them All?-A Tailored Approach to Single Image Reflection Removal, *IEEE Transactions on Image Processing (TIP 2019)*.
- ★ Qingnan Fan*, **Dongdong Chen***, Lu Yuan, Gang Hua, Nenghai Yu, Baoquan Chen, A General Decoupled Learning Framework for Parameterized Image Operators, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI 2019)*. (*joint first author)
- ★ **Dongdong Chen**, Mingming He, Qingnan Fan, Jing Liao, Liheng Zhang, Dongdong Hou, Lu Yuan, Gao Hua, Gated Context Aggregation Network for Image Dehazing and Deraining, *IEEE Winter Conf. on Applications of Computer Vision (WACV 2019)*.
- ★ Mingming He, Jing Liao, Lu Yuan, **Dongdong Chen**, Pedro V. Sander, Progressive Color Transfer with Dense Semantic Correspondences, *ACM Transactions on Graphics (TOG 2018)*.
- ★ Qingnan Fan*, **Dongdong Chen***, Lu Yuan, Gang Hua, Nenghai Yu, Baoquan Chen, Decouple Learning for Parameterized Image Operators, *European Conference on Computer Vision (ECCV 2018)*. (*joint first author)
- ★ Mingming He*, **Dongdong Chen***, Jing Liao, Pedro V. Sander, Lu Yuan, Deep Exemplar-based Colorization, *ACM Transactions on Graphics (Siggraph 2018)*., (*joint first author)
- ★ **Dongdong Chen**, Lu Yuan, Jing Liao, Nenghai Yu, Gang Hua, Stereoscopic Neural Style Transfer, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2018)*.
- ★ **Dongdong Chen**, Jing Liao, Lu Yuan, Nenghai Yu, Gang Hua, Coherent Online Video Style Transfer, *International Conference on Computer Vision (ICCV 2017)*.

- ★ **Dongdong Chen**, Lu Yuan, Jing Liao, Nenghai Yu, Gang Hua, StyleBank: An Explicit Representation for Neural Image Style Transfer, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2017)*.

Representation Learning:

- ★ Xiaoyi Dong, Jianmin Bao, **Dongdong Chen**, Weiming Zhang, Nenghai Yu, Lu Yuan, Dong Chen, Baining Guo, CSWin Transformer: A General Vision Transformer Backbone with Cross-Shaped Windows, *arxiv 2021*.
- ★ Shuquan Ye, **Dongdong Chen**, Songfang Han, Jing Liao, 3D Question Answering, *arXiv:2112.08359*
- ★ Yinpeng Chen, Xiyang Dai, **Dongdong Chen**, Mengchen Liu, Xiaoyi Dong, Lu Yuan, Zicheng Liu, Mobile-Former: Bridging MobileNet and Transformer, *arxiv 2021*.
- ★ Junru Wu, Xiyang Dai, **Dongdong Chen**, Yinpeng Chen, Mengchen Liu, Ye Yu, Zhangyang Wang, Zicheng Liu, Mei Chen, Lu Yuan, Stronger NAS with Weaker Predictors, *NeurIPs 2021*.
- ★ Yunsheng Li, Yinpeng Chen, Xiyang Dai, **Dongdong Chen**, Mengchen Liu, Lu Yuan, Zicheng Liu, Lei Zhang, Nuno Vasconcelos, MicroNet: Improving Image Recognition with Extremely Low FLOPs, *International Conference on Computer Vision (ICCV 2021)*.
- ★ Shuquan Ye, **Dongdong Chen**, Songfang Han, Jing Liao, Learning with Noisy Labels for Robust Point Cloud Segmentation, *International Conference on Computer Vision (ICCV 2021)*.
- ★ Ziyu Wan, **Dongdong Chen**, Jing Liao, Visual Structure Constraint for Transductive Zero-Shot Learning in the Wild, *International Journal of Computer Vision (IJCV 2021)*.
- ★ Xiyang Dai, Yinpeng Chen, Bin Xiao, **Dongdong Chen**, Mengchen Liu, Lu Yuan, Lei Zhang, Dynamic Head: Unifying Object Detection Heads with Attentions, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2021)*.
- ★ Yunsheng Li, Yinpeng Chen, Xiyang Dai, Mengchen Liu, **Dongdong Chen**, Ye Yu, Lu Yuan, Zicheng Liu, Mei Chen, Nuno Vasconcelos, Revisiting Dynamic Convolution via Matrix Decomposition, *International Conference on Learning Representations (ICLR 2021)*.
- ★ Dengpan Fu, Bo Xin, Jingdong Wang, **Dongdong Chen**, Jianmin Bao, Gang Hua, Houqiang Li, Improving Person Re-identification with Iterative Impression Aggregation, *IEEE Transactions on Image Processing (TIP 2020)*.
- ★ Xiyang Dai, **Dongdong Chen**, Mengchen Liu, Yinpeng Chen, Lu Yuan, DA-NAS: Data Adapted Pruning for Efficient Neural Architecture Search, *European Conference on Computer Vision (ECCV 2020)*.
- ★ Yinpeng Chen, Xiyang Dai, Mengchen Liu, **Dongdong Chen**, Lu Yuan, Zicheng Liu, Dynamic ReLU, *European Conference on Computer Vision (ECCV 2020)*.
- ★ Suichan Li, Bin Liu, **Dongdong Chen**, Qi Chu, Lu Yuan, Nenghai Yu, Density-Aware Graph for Deep Semi-Supervised Visual Recognition, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2020)*.

- ★ Ziyu Wan, Bo Zhang, **Dongdong Chen**, Pan Zhang, Dong Chen, Jing Liao, Fang Wen, Bringing Old Photos Back to Life, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2020)*.
- ★ Yinpeng Chen, Xiyang Dai, Mengchen Liu, **Dongdong Chen**, Lu Yuan, Zicheng Liu, Dynamic convolution: Attention over convolution kernels, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2020)*.
- ★ Ziyu Wan*, **Dongdong Chen***, Yan Li, Xingguang Yan, Junge Zhang, Yizhou Yu, Jing Liao, Transductive Zero-Shot Learning with Visual Structure Constraint, *Thirty-third Conference on Neural Information Processing Systems (NeurIPS 2019)*. (*joint first author).
- ★ Jizhou Yan, **Dongdong Chen**, Heesoo Myeong, Takaaki Shiratori, Yi Ma, Automatic Extraction of Moving Objects from Image and LIDAR Sequences, *International Conference on 3D Vision 2014 (3DV 2014)*.

AI Security:

- ★ Jie Zhang, **Dongdong Chen**, Jing Liao, Qidong Huang, Gang Hua, Weiming Zhang, Nenghai Yu, Poison Ink: Robust and Invisible Backdoor Attack, *arxiv 2021*.
- ★ Jie Zhang, **Dongdong Chen**, Jing Liao, Han Fang, Zehua Ma, Weiming Zhang, Gang Hua, Nenghai Yu, Exploring Structure Consistency for Deep Model Watermarking, *arxiv 2021*.
- ★ Hanqing Zhao, Wenbo Zhou, **Dongdong Chen**, Tianyi Wei, Weiming Zhang, Nenghai Yu, Multi-attentional Deepfake Detection, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2021)*.
- ★ Jie Zhang*, **Dongdong Chen***, Jing Liao, Weiming Zhang, Huamin Feng, Gang Hua, Nenghai Yu, Deep Model Intellectual Property Protection via Deep Watermarking, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI 2021)*, (*joint first author).
- ★ Kejiang Chen, Hang Zhou, Hanqing Zhao, **Dongdong Chen**, Weiming Zhang, Nenghai Yu, Distribution-Preserving Steganography Based on Text-to-Speech Generative Models, *IEEE Transactions on Dependable and Secure Computing (TDSC 2021)*.
- ★ Kunlin Liu, **Dongdong Chen***, Jing Liao, Weiming Zhang, Hang Zhou, Jie Zhang, Wenbo Zhou, Nenghai Yu, JPEG Robust Invertible Grayscale, *IEEE Transactions on Visualization and Computer Graphics (TVCG 2021)*. (*joint first author)
- ★ Huanyu Bian, Hao Cui, Kunlin Liu, Hang Zhou, **Dongdong Chen**, Wenbo Zhou, Weiming Zhang, Nenghai Yu, CDAE: Color decomposition-based adversarial examples for screen devices, *Information Sciences 2021*.
- ★ Han Fang, **Dongdong Chen**, Feng Wang, Zehua Ma, Honggu Liu, Wenbo Zhou, Weiming Zhang, Neng-Hai Yu, TERA: Screen-to-Camera Image Code with Transparency, Efficiency, Robustness and Adaptability, *IEEE Transactions on Multimedia (TMM 2021)*.
- ★ Han Fang, **Dongdong Chen**, Qidong Huang, Jie Zhang, Zehua Ma, Weiming Zhang, Nenghai Yu, Deep Template-based Watermarking, *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT 2020)*.

- ★ Jie Zhang*, **Dongdong Chen***, Jing Liao, Weiming Zhang, Gang Hua, Nenghai Yu, Model watermarking for image processing networks, *AAAI Conference on Artificial Intelligence (AAAI 2020)*. (**joint first author*)
- ★ Jie Zhang*, **Dongdong Chen***, Jing Liao, Weiming Zhang, Gang Hua, Nenghai Yu, Passport-aware Normalization for Deep Model Protection, *Advances in Neural Information Processing Systems (NeurIPs 2020)*. (**joint first author*)
- ★ Xiaoyi Dong, **Dongdong Chen**, Jianmin Bao, Chuan Qin, Lu Yuan, Weiming Zhang, Nenghai Yu, Dong Chen, GreedyFool: Distortion-Aware Sparse Adversarial Attack, *Advances in Neural Information Processing Systems (NeurIPs 2020)*.
- ★ Hang Zhou*, **Dongdong Chen***, Jing Liao, Kejiang Chen, Xiaoyi Dong, Kunlin Liu, Weiming Zhang, Gang Hua, Nenghai Yu, LG-GAN: Label Guided Adversarial Network for Flexible Targeted Attack of Point Cloud Based Deep Networks, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2020)*. (**joint first author*)
- ★ Xiaoyi Dong, **Dongdong Chen**, Hang Zhou, Gang Hua, Weiming Zhang, Nenghai Yu, Self-Robust 3D Point Recognition via Gather-Vector Guidance, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2020)*.
- ★ Xiaoyi Dong, Jiangfan Han, **Dongdong Chen**, Jiayang Liu, Huanyu Bian, Zehua Ma, Hongsheng Li, Xiaogang Wang, Weiming Zhang, Nenghai Yu, Robust Superpixel-Guided Attentional Adversarial Attack, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2020)*.
- ★ Jiangfan Han, Xiaoyi Dong, Ruimao Zhang, **Dongdong Chen**, Weiming Zhang, Nenghai Yu, Ping Luo, Xiaogang Wang, Once a MAN: Towards Multi-Target Attack via Learning Multi-Target Adversarial Network Once, *Proceedings of the IEEE International Conference on Computer Vision (ICCV 2019)*.
- ★ Dongdong Hou, Weiming Zhang, Jiayang Liu, Siyan Zhou, **Dongdong Chen**, Nenghai Yu, Emerging Applications of Reversible Data Hiding, *International Conference on Image and Graphics Processing (ICIGP 2019)*.

Book Chapters

- ★ Gang Hua, **Dongdong Chen**, "Deep Conditional Image Generation: Towards Controllable Visual Pattern Modeling", in *Advanced Methods and Deep Learning in Computer Vision*, edited by E .R. Davies and Matthew Turk, Elsevier, 2021.
- ★ **Dongdong Chen**, Lu Yuan, Gang Hua, "Deep Style Transfer", in *Computer Vision: A Reference Guide, Second Edition*, edited by Katsushi Ikeuchi, Springer 2020.
- ★ **Dongdong Chen**, Lu Yuan, Gang Hua, "Texture Synthesis", in *Computer Vision: A Reference Guide, Second Edition*, edited by Katsushi Ikeuchi, Springer 2020.

Services

- ★ Associate Editor with Pattern Recognition from 2022
- ★ Senior Program Committee (SPC) of AAAI 2022 and Area Chair of CVPR 2022
- ★ Reviewer for CVPR 2021, ICCV 2021, NeurIPs 2021, Siggraph 2021
- ★ Reviewer for CVPR 2020, ECCV 2020, NeurIPs 2020, AAAI 2020
- ★ Reviewer for CVPR 2019, ICCV 2019, AAAI 2019, PRCV 2019, ICME 2019, ICIG 2019
- ★ Reviewer for CVPR2018, ECCV 2018, ACCV2018
- ★ Reviewer for IEEE Transactions on Pattern Analysis and Machine Intelligence(TPAMI)
- ★ Reviewer for International Journal of Computer Vision(IJCV)
- ★ Reviewer for IEEE Transactions on Image Processing(TIP)
- ★ Reviewer for IEEE Transactions on Multimedia(TMM)
- ★ Reviewer for IEEE Transactions on Circuits and Systems for Video Technology(TCSVT)
- ★ Reviewer for Machine Vision and Applications(MVAP)
- ★ Reviewer for Journal of Selected Topics in Signal Processing(JSTSP)
- ★ Reviewer for Public Library of Science (PLOS ONE)

Awards & Honors

- 2021 Outstanding Reviewer Award of CVPR 2021, ICCV 2021
- 2020 Outstanding Reviewer Award of CVPR 2020
- 2019 Chinese Academy of Sciences President Award (Special)
- 2018 National Scholarship for Graduate Students, University of Science and Technology of China
- 2018 (3/2950 Teams) FashionAI Global Challenge—Attributes Recognition of Apparel
- 2018 (7/2322 Teams) FashionAI Global Challenge—Key Points Detection of Apparel
- 2018 Excellence Award of Stars of Tomorrow Internship Program, Microsoft Research Asia
- 2016 Best Demo Prize (4/7661 Teams) of Di-Tech Algorithm Contest of Big Data
- 2016 Top 5 in Tianyi Algorithm Contest of Big Data
- 2015 Grand Prize (1/1438 teams) in CCF National Youth Innovation Contest of Big Data 2015
- 2013 National Scholarship (2/133), University of Science and Technology of China
- 2012 National Scholarship (2/133), University of Science and Technology of China