Xin Ma

189-8048-1629 @ xin.ma1@monash.edu
Monash University Doctor of Philosophy

Highly-motivated Ph.D. student in Monash-NTU-Vision Group led by Prof. Jianfei Cai at Monash University. My research interest lies in image super-resolution, image inpainting, generative adversarial network, model compression, etc. Currently, several papers have been published in international conferences or journals. In terms of practical application, several national invention patents have been applied.

Education

Present Sep 2022	Faculty of Information Technology, Monash University Ph.D. Student in Computer Science
Jun 2021 Sep 2018	School of Artificial Intelligence, University of Chinese Academy of Sciences Master's Degree in Computer Technology
Jun 2018 Sep 2014	School of Electrical and Information Engineering, JiangSu University Bachelor's Degree in Applied Electronic Information Engineering

Work Experiences

Present
Dec 2022

Researcher @ Shanghai Artificial Intelligence Laboratory (**Inter**)

- Research on generative models: mainly studies the generative models, such as diffusion models, and applies them to videos, faces, and other tasks.

Sep 2022
Jun 2021

Algorithm engineer @ Meituan •Vision Intelligence Department (**Full-time Work)**

- Research on model compression: we developed a set of tools to support pruning and quantification of deep learning models, which can help developers quickly deploy models to edge devices without accuracy drop and accelerate the inference speeds of models. One paper was accepted by CVPR 2022 during this period.

Aug 2020
Apr 2020

Agorithm engineer @ Meituan •Vision Intelligence Center (**Inter**)

- Research on Image Dewatermarking Algorithm: An image dewatermarking algorithm was proposed based on attention mechanism and self-supervised learning. The algorithm is now launched on Meituan and used in Meituan takeaway dewatermarking system. Related work was accepted by ICPR 2020 and selected as an oral presentation.

Publications

—— Published Papers ——

- **Xin Ma**, Xiaoqiang Zhou, Huaibo Huang, Zhenhua Chai, Xiaolin Wei, Ran He. "Free-Form Image Inpainting via Contrastive Attention Network ", International Conference on Pattern Recognition (**ICPR**), 2020 (**oral** 5%), **CCF-C**
- **Xin Ma**, Xiaoqiang Zhou, Huaibo Huang, Gengyun Jia, Zhenhua Chai, Xiaolin Wei. "Contrastive Attention Network with Dense Field Estimation for Face Completion", Pattern Recognition (**PR**), 2021, **Q1**
- Yuhe Ding*, **Xin Ma***, Mandi Luo, Aihua Zheng, Ran He. "Unsupervised Contrastive Photo-to-Caricature Translation based on Auto-distortion" International Conference on Pattern Recognition (**ICPR**), 2020 (* equal contribution), **CCF-C**
- Mandi Luo, **Xin Ma**, Zhihang Li, Jie Cao, Ran He. "Partial NIR-VIS Heterogeneous Face Recognition with Automatic Saliency Search", IEEE Transactions on Information Forensics and Security (**T-IFS**), 2021, **Q1**

- Mandi Luo, Jie Cao, **Xin Ma**, Xiaoyu Zhang, Ran He. "FA-GAN: Face Augmentation GAN for deformation-invariant face recognition", IEEE Transactions on Information Forensics and Security (**T-IFS**), 2021, **Q1**
- Huanyu Wang, Junjie Liu, **Xin Ma**, Zhenhua Chai, Jianxin Wu. "Compressing Models with Few Samples: Mimicking then Replacing", Computer Vision and Pattern Recognition (**CVPR**), 2022, **CCF-A**
- Gengyun Jia, Meisong Zheng, Chuanrui Hu, **Xin Ma**, Yuting Xu, Luoqi Liu, Yafeng Deng, Ran He, "Inconsistency-aware Wavelet Dual-branch Network for Face Forgery Detection", IEEE Transactions on Biometrics, Behavior, and Identity Science (**T-BIOM**), 2021,
- Mandi Luo*, **Xin Ma***, Huaibo Huang, Yi Li, Ran He. "Style-based Attentive Network for Real-World Face Hallucination", Chinese Conference on Pattern Recognition and Computer Vision (**PRCV**), 2022, **CCF-C**

Patent Applications

- Service execution method and device, storage medium and electronic equipment, CN115034386A
- Model training method, map building method and device, CN114972909A
- Image completion method and device, storage medium and electronic equipment, CN114764748A
- Attention-mechanism-based image completion method and device, CN112184582B
- Human body image key point attitude estimation method, CN112686097A
- Target detection method based on self-learning data, CN112686282A
- Image completion method based on content attention mechanism and mask prior, CN112686816A
- Image completion method based on uncertainty estimation, CN112686817A
- Facial expression synthesis method based on geometric prior adversarial generative adversarial network, CN112634392A
- Attention mechanism-based image restoration method, CN111915522A
- Method for automatically enhancing image data, CN111882492A
- Image restoration method based on generative adversarial network, CN111815523A
- Human body image detection method, CN111523494A
- Face image correction method based on decoupling expression learning generative adversarial network, CN111428667A
- Human body image key point attitude estimation method, CN111160085A
- Human face image super-resolution method based on attention mechanism, CN111080513A
- Face image super-resolution method based on structure prior, CN111080521A
- Image super-resolution method of adversarial generative network based on fusion mutual information, CN110660020A
- Face image super-resolution method based on dense residual neural network, CN110610464A
- Human body image key point attitude estimation method, CN110443144A
- Image super-resolution method of deep neural network fusing mutual information, CN110211035A
- Cartoon style image conversion model training method, image generation method and device, CN112232485A
- Attention mechanism human body image key point posture estimation method and system, CN112149563A

Awards & Certificates

2022 PRCV2022 Aerial-Ground Intelligent Unmanned System Environment Perception Challenge, the second place
2021 ICCV2021 Low Power Computer Vision Challenge: the second place
2021 Merit Student of University of Chinese Academy of Sciences

Competences & Languages

Programming Python, C/C++, Matlab, Latex, Pytorch, Linux
Languages **English** —CET-6; PTE 62

马鑫

189-8048-1629 @ xin.ma1@monash.edu
蒙纳士大学 计算机科学 • 博士

蒙纳士大学蔡剑飞教授 Monash-NTU-Vision 研究组在读博士。研究兴趣为机器学习和模式识别，主要关注于图像超分辨率、图像补全，生成式模型，模型压缩等。目前以向国际会议或期刊发表多篇论文。在实际应用方面，目前已申请多项国家发明专利。

教育背景

现在 2022.09 | **蒙纳士大学** • 信息技术系
计算机科学 • 博士

2021.06 2018.09 | **中国科学院大学** • 人工智能学院
计算机技术 • 硕士

2018.06 2014.09 | **江苏大学** • 电气信息工程学院
电子信息技术 • 学士

工作经历

现在 2022.12 | （实习）见习研究员 @ 上海人工智能实验室 • 通用视觉组

- **生成模型:** 主要研究生成模型，比如 diffusion models，并将其应用在视频，人脸等任务中。

2022.09 2021.07 | （全职）算法工程师 @ 美团 • 视觉智能中心

- **模型压缩:** 我们开发了一套支持深度学习模型修剪和量化的工具，可以帮助开发者快速地将模型部署到边缘设备而不降低精度，加快模型的推理速度，在此期间在 CVPR 上合作发表了一篇小样本的模型压缩方法。

2020.08 2020.04 | （实习）深度学习算法研发 @ 美团 • 基础视觉组

- **图像去水印算法研究:** 基于注意力机制和自监督学习，设计了一种高质量的图像去水印算法。该算法现已上线美团网，用于美团外卖去水印系统。相关工作已被 ICPR2021 接受，并选为 oral。

论文发表

—— Published Papers ——

- **Xin Ma**, Xiaoqiang Zhou, Huaibo Huang, Zhenhua Chai, Xiaolin Wei, Ran He. "Free-Form Image Inpainting via Contrastive Attention Network ", International Conference on Pattern Recognition (**ICPR**), 2020 (**oral** 5%), **CCF-C**
- **Xin Ma**, Xiaoqiang Zhou, Huaibo Huang, Gengyun Jia, Zhenhua Chai, Xiaolin Wei. "Contrastive Attention Network with Dense Field Estimation for Face Completion", Pattern Recognition (**PR**), 2021, **Q1**
- Yuhe Ding*, **Xin Ma***, Mandi Luo, Aihua Zheng, Ran He. "Unsupervised Contrastive Photo-to-Caricature Translation based on Auto-distortion" International Conference on Pattern Recognition (**ICPR**), 2020 (* equal contribution), **CCF-C**

- Mandi Luo, **Xin Ma**, Zhihang Li, Jie Cao, Ran He. "Partial NIR-VIS Heterogeneous Face Recognition with Automatic Saliency Search", IEEE Transactions on Information Forensics and Security (**T-IFS**), 2021, **Q1**
- Mandi Luo, Jie Cao, **Xin Ma**, Xiaoyu Zhang, Ran He. "FA-GAN: Face Augmentation GAN for deformation-invariant face recognition", IEEE Transactions on Information Forensics and Security (**T-IFS**), 2021, **Q1**
- Huanyu Wang, Junjie Liu, **Xin Ma**, Zhenhua Chai, Jianxin Wu. "Compressing Models with Few Samples: Mimicking then Replacing", Computer Vision and Pattern Recognition (**CVPR**), 2022, **CCF-A**
- Gengyun Jia, Meisong Zheng, Chuanrui Hu, **Xin Ma**, Yuting Xu, Luoqi Liu, Yafeng Deng, Ran He, "Inconsistency-aware Wavelet Dual-branch Network for Face Forgery Detection", IEEE Transactions on Biometrics, Behavior, and Identity Science (**T-BIOM**), 2021,
- Mandi Luo*, **Xin Ma***, Huaibo Huang, Yi Li, Ran He. "Style-based Attentive Network for Real-World Face Hallucination", Chinese Conference on Pattern Recognition and Computer Vision (**PRCV**), 2022, **CCF-C**

专利申请

- 一种业务执行的方法、装置、存储介质及电子设备，CN115034386A
- 一种模型训练的方法、构建地图的方法及装置，CN114972909A
- 图像补全方法和装置、存储介质和电子设备，CN114764748A
- 一种基于注意力机制的图像补全方法及装置，CN112184582B
- 一种人体图像关键点姿态估计方法，CN112686097A
- 一种基于自学习数据的目标检测方法，CN11268628A
- 一种基于内容注意力机制和掩码先验的图像补全方法，CN112686816A
- 一种基于不确定性估计的图像补全方法，CN112686817A
- 一种基于几何先验对抗生成网络的人脸表情合成方法，CN112634392A
- 一种基于注意力机制的图像修复方法，CN111915522A
- 一种图像数据自动增强的方法，CN111882492A
- 一种基于生成对抗网络的图像修复方法，CN111815523A
- 一种人体图像检测方法，CN111523494A
- 一种基于解耦表达学习生成对抗网络的人脸图像转正方法，CN111428667A
- 一种人体图像关键点姿态估计方法，CN111160085A
- 一种基于注意力机制的人脸图像超分辨率方法，CN111080513A
- 一种基于结构先验的人脸图像超分辨率方法，CN111080521A
- 一种基于融合互信息的对抗生成网络的图像超分辨率方法，CN110660020A
- 一种基于稠密残差神经网络的人脸图像超分辨率方法，CN110610464A
- 一种人体图像关键点姿态估计方法，CN110443144A
- 融合互信息的深度神经网络的图像超分辨率方法，CN110211035A
- 漫画风格图像转换模型的训练方法、图像生成方法及装置，CN112232485A
- 一种注意力机制人体图像关键点姿态估计方法及系统，CN112149563A

获奖及证书

2022 PRCV2022 Aerial-Ground Intelligent Unmanned System Environment Perception Challenge, 第二名
2021 ICCV2021 Low Power Computer Vision Challenge，第二名
2021 中国科学院大学三好学生

技能和语言

编程 Python, Matlab, C++, Latex, Pytorch
语言 **英语** — 大学英语六级，PTE 62