



# Xin Ma

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🏛 Monash University

🎓 Doctor of Philosophy ⓘ Computer science, Computer vision

Highly-motivated PhD 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 to international conferences or journals. In terms of practical application, several national invention patents have been applied.

## 🎓 Education

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

## 💼 Internships/Works

Present	Researcher @ Shanghai Artificial Intelligence Laboratory ( <b>Inter</b> )
Dec 2022	➤ Research on generative models: mainly studies the generative models, such as diffusion models, and applies them to videos, faces, and other tasks.
Sep 2022	Algorithm engineer @ Meituan • Vision Intelligence Department ( <b>Full-time Work</b> )
Jun 2021	➤ 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	Algorithm engineer @ Meituan • Vision Intelligence Center ( <b>Inter</b> )
Apr 2020	➤ 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
- 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** — Preprints —
  - › **Xin Ma**, Xiaoqiang Zhou, Huaibo Huang, Zhenhua Chai, Xiaolin Wei, Ran He. ”Uncertainty-Aware Image Inpainting with Adaptive Feedback Network”, Plan to submit it to T-IFS
  - › Mandi Luo, Jie Cao, **Xin Ma**, Chen Gao, Si Liu, Ran He. ”Depth-aware Human Interaction Manipulation with Imitative Contrastive Learning”
  - › Gengyun Jia, Chaoyou Fu, **Xin Ma**, Ran He. ”Uncertainty Aware Image Cropping with Energy-based Models”

## Patent Applications

- › An image completion method and device based on attention mechanism, Patent Number: CN112184582A
- › A method and system with attention mechanism for human pose estimation, Patent Number: CN112149563A (second inventor)
- › An image restoration method based on attention mechanism, Patent Number: CN111915522A
- › A method for automatic enhancement of image data, Patent Number: CN111882492A (second inventor)
- › An image restoration method based on generative adversarial network, Patent Number: CN111815523A
- › A generative adversarial network with disentangled representation learning for face image frontalization, Patent Number: CN111428667A
- › A face image super-resolution method based on structural prior, Patent Number: CN111080521A

## Competences & Languages

**Programming** Python, C/C++, Matlab, Latex, Pytorch, Linux

 **Languages** **English** —CET-6; PTE 62

## Awards & Certificates

- |      |  |
|------|--|
| 2021 | ICCV2021 Low Power Computer Vision Challenge: the second place |
| 2021 | Merit Student of University of Chinese Academy of Sciences     |
| 2017 | College Student Innovation Project                             |
| 2016 | Excellence Award in Electronic Design Competition              |



马鑫

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蒙纳士大学 计算机科学 • 博士

深度学习, 计算机视觉

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。目前已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	蒙纳士大学 • 信息技术系
2022.09	计算机科学 • 博士
2021.06	中国科学院大学 • 人工智能学院
2018.09	计算机技术 • 硕士
2018.06	江苏大学 • 电气信息工程学院
2014.09	电子信息技术 • 学士

## 实习和工作经历

现在	(实习) 见习研究员 @ 上海人工智能实验室 • 通用视觉组
2022.12	‣ <b>生成模型</b> : 主要研究生成模型，比如 <b>diffusion models</b> ，并将其应用在视频，人脸等任务中。
2022.09	(工作) 算法工程师 @ 美团 • 视觉智能中心
2021.07	‣ <b>模型压缩</b> : 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 <b>CVPR</b> 上合作发表了一篇小样本的模型压缩方法。
2020.08	(实习) 深度学习算法研发 @ 美团 • 基础视觉组
2020.04	‣ <b>图像去水印算法研究</b> : 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 <b>ICPR2021</b> 接受，并选为 <b>oral</b> 。

## Publications

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- **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
- 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**

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- › 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
- Preprints —
- › **Xin Ma**, Xiaoqiang Zhou, Huaibo Huang, Zhenhua Chai, Xiaolin Wei, Ran He. "Uncertainty-Aware Image Inpainting with Adaptive Feedback Network", Plan to submit it to T-IFS
- › Mandi Luo, Jie Cao, **Xin Ma**, Chen Gao, Si Liu, Ran He. "Depth-aware Human Interaction Manipulation with Imitative Contrastive Learning"
- › Gengyun Jia, Chaoyou Fu, **Xin Ma**, Ran He. "Uncertainty Aware Image Cropping with Energy-based Models"

## 🔗 申请专利

- › 融合互信息的深度神经网络的图像超分辨率方法 [已公示]
- › 一种基于稠密残差神经网络的人脸图像超分辨率方法 [已公示]
- › 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 [已公示]
- › 一种人体图像关键点姿态估计方法 [已公示](第二发明人)
- › 一种图像补全方法 (美团实习成果)
- › 基于结构先验的人脸图像超分辨率方法
- › 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
- › 一种基于注意力机制的图像补全方法

## 🏆 获奖及证书

2021 ICCV2021 Low Power Computer Vision Challenge, 第二名  
2021 中国科学院大学三好学生  
2017 大学生创新项目  
2016 校电子设计竞赛优秀奖

## 🔧 技能和语言

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