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# Jian Zhao

National University of Singapore Department of ECE Block E4, #08-24 Singapore 117583

# RESEARCH INTERESTS

Artificial intelligence, deep learning and computer vision, including unconstrained/large-scale/low-shot face recognition, image generation with adversarial learning, and human parsing.

### **EDUCATION**

Ph.D. Electrical and Computer Engineering, National University of Singapore, 2016.01-2019.06 (Expected).

Thesis: Deep Learning for Human-Centric Image Analysis.

Advisors: Prof. Jiashi Feng, Prof. Shuicheng Yan.

M.Eng. Computer Science and Technology, School of Computer, National University of Defense Technology, 2012.09-2014.12.

Advisor: Prof. Xucan Chen.

B.Eng. Automation, School of Automation Science and Electrical Engineering, Beihang University, 2008.09-2012.07

### ACADEMIC EXPERIENCE

**Research Intern**, Core Technology Group, Learning & Vision, Panasonic R&D Center, Singapore, May 2016 - Sep 2018.

**Research Intern**, China Aerospace Science and Industry Corporation, Sep 2011 - Jun 2012.

#### **TEACHING**

**Graduate Assistant**, Programming for Computer Interfaces (EE2024), National University of Singapore, Aug 2016 - Dec 2017.

# AWARDS AND HONOURS

Best Student Paper Award, 1st author, ACM MM 2018.

**1st-Place Award**, 1st author, MS-Celeb-1M face recognition hard set/random set/low-shot learning challenges with ICCV 2017.

**1st-Place Award**, 1st author, NIST IJB-A unconstrained face verification/identification challenges, 2017.

**2nd-Place Award**, 1st author, L.I.P human parsing/pose estimation challenges with CVPR 2017.

**3rd-Place Award**, 2nd author, MS-Celeb-1M face recognition hard set challenge with ACM MM 2016.

Excellent Student Award (<10%), School of Computer, National University of Defense Technology, 2016.

Excellent Student Award (<10%), School of Computer, National University of Defense Technology, 2015.

Excellent Graduate Award (<2%), National University of Defense Technology, 2014.

Excellent Student Award (<2%), National University of Defense Technology, 2014.

**Guanghua Fellowship** (<2%), National University of Defense Technology, 2014.

**Contribution Prize**, for Engineering Implementation of Tianhe-2 supercomputer (No.1 on Top500, Jun, 2013), National University of Defense Technology, 2013.

**3rd-Place Award**, 13th "Great Wall Information Cup" challenge, National University of Defense Technology, 2013.

Excellent Student Award (<10%), School of Computer, National University of Defense Technology, 2013.

**1st-Place Award**, Big Data Processing and Information Sub-Forum of the 6th Graduate Innovation Forum, Provincial Education Department of Hunan Province, 2013.

Excellent Graduate Award (<2%), Beihang University, 2012.

**2nd-Place Award**, 5th Student Research Training Program (SRTP), Beihang University, 2012.

**National Endeavor Fellowship**, Central Government & Beijing Government of China, 2011.

**3rd-Place Award**, "Feng Ru Cup" challenge, School of Automation Science and Electrical Engineering, Beihang University, 2011.

**SMC Fellowship**, Beihang University, 2010.

## **PUBLICATIONS**

Journal Articles

**Jian Zhao**, Lin Xiong, Jianshu Li, Junliang Xing, Shuicheng Yan, Jiashi Feng. *3D-Aided Dual-Agent GANs for Unconstrained Face Recognition*. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2018. (**T-PAMI**).

**Jian Zhao**, Junliang Xing, Lin Xiong, Yan Xu, Shuicheng Yan, Jiashi Feng. *Deep Age-Invariant Face Recognition*. Submitted to International Journal of Computer Vision, 2018. (IJCV).

**Jian Zhao**, Junliang Xing, Lin Xiong, Shuicheng Yan, Jiashi Feng. *Recognizing Profile Faces by Imagining Frontal View*. Submitted to International Journal of Computer Vision, 2018. (**IJCV**).

**Jian Zhao**, Lin Xiong, Junliang Xing, Shuicheng Yan, Jiashi Feng. *Turn Around Your Face: High-Performance Pose-Invariant Face Recognition via 3D-Driven Face Frontalization*. Submitted to International Journal of Computer Vision, 2018. (**IJCV**).

**Jian Zhao**, Jianshu Li, Hengzhu Liu, Shuicheng Yan, Jiashi Feng. *Fine-Grained Multi-Human Parsing*. Submitted to International Journal of Computer Vision, 2018. (**IJCV**).

Jianshu Li\*, **Jian Zhao**\*, Yunchao Wei, Congyan Lang, Yidong Li, Terence Sim, Shuicheng Yan, Jiashi Feng. *Fine-Grained Multi-Human Parsing*. Submitted to International Journal of Computer Vision, 2018. (**IJCV**). (\* indicates equal contribution).

Fang Zhao, Jiashi Feng, **Jian Zhao**, Wenhan Yang, Shuicheng Yan. *Robust LSTM-Autoencoders for Face De-Occlusion in the Wild*. IEEE Transactions on Image Processing, 2017. (**T-IP**).

## **Proceedings**

Jian Zhao, Yu Cheng, Yi Cheng, Yang Yang, Fang Zhao, Jianshu Li, Hengzhu Liu, Shuicheng Yan, Jiashi Feng. Look Across Elapse: Disentangled Representation Learning and Photorealistic Cross-Age Face Synthesis for Age-Invariant Face Recognition. AAAI Conference on Artificial Intelligence (AAAI 2019). Oral.

Jianshu Li, Pan Zhou, Yunpeng Chen, **Jian Zhao**, Sujoy Roy, Yan Shuicheng, Jiashi Feng, Terence Sim. *Task Relation Networks*. IEEE Winter Conference on Applications of Computer Vision (**WACV** 2019).

**Jian Zhao**, Yu Cheng, Yan Xu, Lin Xiong, Jianshu Li, Fang Zhao, Karlekar Jayashree, Sugiri Pranata, Shengmei Shen, Junliang Xing, Shuicheng Yan, Jiashi Feng. *Towards Pose Invariant Face Recognition in the Wild*. IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR** 2018).

**Jian Zhao**, Lin Xiong, Yu Cheng, Yi Cheng, Jianshu Li, Li Zhou, Yan Xu, Karlekar Jayashree, Sugiri Pranata, Shengmei Shen, Junliang Xing, Shuicheng Yan, Jiashi Feng. *3D-Aided Deep Pose-Invariant Face Recognition*. International Joint Conference on Artificial Intelligence (**IJCAI** 2018). Oral.

Jian Zhao, Jianshu Li, Yu Cheng, Terence Sim, Shuicheng Yan, Jiashi Feng. Understanding Humans in Crowded Scenes: Deep Nested Adversarial Learning and A New Benchmark for Multi- Human Parsing. ACM Multimedia Conference (ACM MM 2018). Best Student Paper.

Fang Zhao\*, **Jian Zhao**\*, Shuicheng Yan, Jiashi Feng. *Dynamic Conditional Networks for Few-Shot Learning*. European Conference on Computer Vision (**ECCV** 2018). (\* indicates equal contribution).

Jianshu Li, **Jian Zhao**, Yunpeng Chen, Sujoy Roy, Shuicheng Yan, Jiashi Feng, Terence Sim. *Multi-Human Parsing Machines*. ACM Multimedia Conference (**ACM MM** 2018).

Fang Zhao, Jianshu Li, **Jian Zhao**, Jiashi Feng. Weakly Supervised Phrase Localization with Multi-Scale Anchored Transformer Network. IEEE International Conference on Computer Vi-sion and Pattern Recognition (**CVPR** 2018).

**Jian Zhao**, Lin Xiong, Karlekar Jayashree, Jianshu Li, Fang Zhao, Zhecan Wang, Sugiri Pranata, Shengmei Shen, Shuicheng Yan, Jiashi Feng. *Dual-Agent GANs for Photorealistic and Identity Preserving Profile Face Synthesis*. Advances in Neural Information Processing Systems (**NIPS** 2017).

**Jian Zhao**, Jianshu Li, Fang Zhao, Shuicheng Yan, Jiashi Feng. *Marginalized CNN: Learning Deep Invariant Representations*. British Machine Vision Conference (**BMVC** 2017).

Jianshu Li, Shengtao Xiao, Fang Zhao, **Jian Zhao**, Jianan Li, Jiashi Feng, Shuicheng Yan, Terence Sim. *Integrated Face Analytics Networks through Cross-Dataset Hybrid Training*. ACM Multimedia Conference (**ACM MM** 2017). Oral.

Jianshu Li, **Jian Zhao**, Fang Zhao, Hao Liu, Jing Li, Shengmei Shen, Jiashi Feng, and Terence Sim. *Robust Face Recognition with Deep Multi-View Representation Learning*. ACM Multimedia Conference (**ACM MM** 2016).

### Workshop

**Jian Zhao**, Jianshu Li, Xuecheng Nie, Yunpeng Chen, Zhecan Wang, Shuicheng Yan, Jiashi Feng. *Self-Supervised Neural Aggregation Networks for Human Parsing*. Workshop on *Visual Understanding of Humans in Crowd Scene* with with CVPR 2017.

**Jian Zhao**, Jianshu Li, Xuecheng Nie, Yunpeng Chen, Zhecan Wang, Shuicheng Yan, Jiashi Feng. *Self-Supervised Neural Aggregation Networks for Human Parsing*. Workshop on *Visual Understanding of Humans in Crowd Scene* with with CVPR 2017.

Yu Cheng\*, **Jian Zhao**\*, Zhecan Wang, Yan Xu, Karlekar Jayashree, Shengmei Shen, Jiashi Feng. *Know You at One Glance: A Compact Vector Representation for Low-Shot Learning*. Workshop on *MS-Celeb-1M Challenge* with ICCV 2017. (\* indicates equal contribution).

Zhecan Wang\*, **Jian Zhao**\*, Yu Cheng, Shengtao Xiao, Jianshu Li, Fang Zhao, Jiashi Feng, and Ashraf Kassim. *Conditional Dual-Agent GANs for Photorealistic and Annotation Preserving Image Synthesis*. Workshop on *FaceHUB* with BMVC 2017. (\* indicates equal contribution).

Yan Xu, Yu Cheng, **Jian Zhao**, Zhecan Wang, Lin Xiong, Karlekar Jayashree, Sugiri Pranata, Shengmei Shen, Jiashi Feng. *High Performance Large Scale Face Recognition with Multi-Cognition Softmax and Feature Retrieval*. Workshop on *MS-Celeb-1M Challenge* with ICCV 2017.

Jianshu Li, Yunpeng Chen, Shengtao Xiao, **Jian Zhao**, Sujoy Roy, Jiashi Feng, Shuicheng Yan, Terence Sim. *Estimation of Affective Level in the Wild with Multiple Memory Networks*. Workshop on *First Faces in-the-wild Challenge* with CVPR 2017.

## INVITED TALKS

# Deep Learning for Human-Centric Image Understanding

Jiang Men, China, 2018.

VALSE Webinar, China, 2018.

## **Facial Analytics**

OmniVision, Singapore, 2018.

National University of Singapore, 2018.

### TECHNICAL ACTIVITIES

## Organizer

Workshop on Visual Understanding of Humans in Crowd Scene, and MHP Challenges on Multi-Human Pose Estimation and Fine-Grained Multi-Human Parsing with CVPR 2018.

### **Program Committee Member**

Workshop on Compact and Efficient Feature Representation Learning in Computer Vision with ECCV 2018.

# Reviewers

T-MM, T-IFS, CSSP, NIPS (one of the top 30% highest-scoring reviewers of NIPS 2018), CVPR, ACM MM, AAAI, ICLR, ICML.

# **HOBBIES**

Travel, Fitness, Mixed Martial Arts (MMA) and Brazilian Jiu-Jitsu (BJJ, Blue Belt under Prof. Leandro Thomas Issa da Silva of Evolve MMA, Singapore).

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工程学院电子与计算机工程系 新加坡国立大学 Block E4, #08-24 新加坡 117583 电话: (65) 96107176 邮箱: zhaojian90@u.nus.edu 个人主页: https://zhaoj9014.github.io/

## 研究兴趣

人工智能, 深度学习与计算机视觉, 包括非受限/大规模/小样本人脸识别, 基于对抗学习的图像生成, 以及人物解析.

## 教育经历

博士,新加坡国立大学电子与计算机工程系,2016.01-2019.06 (预期).

论文题目: 基于深度学习的人物图像理解.

导师: 冯佳时, 颜水成, 刘衡竹.

硕士,国防科技大学计算机学院计算机科学与技术专业,2012.09-2014.12.

导师: 陈旭灿.

学士,北京航空航天大学自动化科学与电气工程学院自动化专业,2008.09-2012.07.

导师: 董邵鹏, 袁梅

# 学术经历

实习, 新加坡松下研发中心学习与视觉核心技术组, 2016.05-2018.09.

实习,中国航天科工集团4院17所,2011.09-2012.06.

### 教学经历

研究生教学助理, 计算机接口编程 (EE2024), 新加坡国立大学, 2016.08-2017.12.

## 学术成果 (获奖)

最佳学生论文奖,第一作者,ACM MM 2018.

冠军, 第一作者, ICCV 2017 MS-Celeb-1M hard set/random set/low-shot learning人脸识别竞赛, 2017.

冠军,第一作者,美国国家标准技术研究所IJB-A非受限人脸验证与人脸鉴别比赛,2017.

亚军, 第一作者, CVPR 2017 L.I.P人物解析/姿态估计竞赛, 2017.

季军, 第二作者, ACM MM 2016 MS-Celeb-1M hard set 人脸识别竞赛, 2016.

优秀学员 (<10%), 国防科技大学计算机学院, 2016.

优秀学员 (<10%), 国防科技大学计算机学院, 2015.

优秀毕业生(<2%), 国防科技大学, 2014.

优秀学员 (<2%), 国防科技大学, 2014.

光华奖学金 (<2%), 国防科技大学, 2014.

积极贡献奖,参与天河二号超级计算机系统工程实现工作(天河二号在2013年6月国际Top500排名中位居世界第一),国防科技大学,2013.

季军,第十三届长城信息杯科技作品竞赛,国防科技大学,2013.

优秀学员 (<10%), 国防科技大学计算机学院, 2013.

一等奖,湖南省第六届研究生创新论坛大数据处理与信息分论坛,湖南省人民政府学位委员会办公室,2013.

优秀毕业生 (<2%), 北京航空航天大学, 2012.

二等奖, 第五届大学生科研训练计划 (SRTP), 北京航空航天大学, 2012.

国家励志奖学金,北京市政府,2011.

三等奖, 第二十一届"冯如杯"竞赛, 北京航空航天大学自动化学院, 2011.

SMC奖学金, 北京航空航天大学, 2010.

学术成果 (论文) 期刊论文

**Jian Zhao**, Lin Xiong, Jianshu Li, Junliang Xing, Shuicheng Yan, Jiashi Feng. 3D-Aided Dual-Agent GANs for Unconstrained Face Recognition. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2018. (**T-PAMI**).

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Fang Zhao, Jiashi Feng, **Jian Zhao**, Wenhan Yang, Shuicheng Yan. *Robust LSTM-Autoencoders for Face De-Occlusion in the Wild*. IEEE Transactions on Image Processing, 2017. (**T-IP**).

# 会议论文

Jian Zhao, Yu Cheng, Yi Cheng, Yang Yang, Fang Zhao, Jianshu Li, Hengzhu Liu, Shuicheng Yan, Jiashi Feng. Look Across Elapse: Disentangled Representation Learning and Photorealistic Cross-Age Face Synthesis for Age-Invariant Face Recognition. AAAI Conference on Artificial Intelligence (AAAI 2019). Oral.

Jianshu Li, Pan Zhou, Yunpeng Chen, **Jian Zhao**, Sujoy Roy, Yan Shuicheng, Jiashi Feng, Terence Sim. *Task Relation Networks*. IEEE Winter Conference on Applications of Computer Vision (**WACV** 2019).

**Jian Zhao**, Yu Cheng, Yan Xu, Lin Xiong, Jianshu Li, Fang Zhao, Karlekar Jayashree, Sugiri Pranata, Shengmei Shen, Junliang Xing, Shuicheng Yan, Jiashi Feng. *Towards Pose Invariant Face Recognition in the Wild*. IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR** 2018).

**Jian Zhao**, Lin Xiong, Yu Cheng, Yi Cheng, Jianshu Li, Li Zhou, Yan Xu, Karlekar Jayashree, Sugiri Pranata, Shengmei Shen, Junliang Xing, Shuicheng Yan, Jiashi Feng. *3D-Aided Deep Pose-Invariant Face Recognition*. International Joint Conference on Artificial Intelligence (**IJCAI** 2018). Oral.

Jian Zhao, Jianshu Li, Yu Cheng, Terence Sim, Shuicheng Yan, Jiashi Feng. Understanding Humans in Crowded Scenes: Deep Nested Adversarial Learning and A New Benchmark for Multi- Human Parsing. ACM Multimedia Conference (ACM MM 2018). Best Student Paper.

Fang Zhao\*, **Jian Zhao**\*, Shuicheng Yan, Jiashi Feng. *Dynamic Conditional Networks for Few-Shot Learning*. European Conference on Computer Vision (**ECCV** 2018). (\* indicates equal contribution).

Jianshu Li, **Jian Zhao**, Yunpeng Chen, Sujoy Roy, Shuicheng Yan, Jiashi Feng, Terence Sim. *Multi-Human Parsing Machines*. ACM Multimedia Conference (**ACM MM** 2018).

Fang Zhao, Jianshu Li, **Jian Zhao**, Jiashi Feng. Weakly Supervised Phrase Localization with Multi-Scale Anchored Transformer Network. IEEE International Conference on Computer Vi-sion and Pattern Recognition (**CVPR** 2018).

**Jian Zhao**, Lin Xiong, Karlekar Jayashree, Jianshu Li, Fang Zhao, Zhecan Wang, Sugiri Pranata, Shengmei Shen, Shuicheng Yan, Jiashi Feng. *Dual-Agent GANs for Photorealistic and Identity Preserving Profile Face Synthesis*. Advances in Neural Information Processing Systems (**NIPS** 2017).

**Jian Zhao**, Jianshu Li, Fang Zhao, Shuicheng Yan, Jiashi Feng. *Marginalized CNN: Learning Deep Invariant Representations*. British Machine Vision Conference (**BMVC** 2017).

Jianshu Li, Shengtao Xiao, Fang Zhao, **Jian Zhao**, Jianan Li, Jiashi Feng, Shuicheng Yan, Terence Sim. *Integrated Face Analytics Networks through Cross-Dataset Hybrid Training*. ACM Multimedia Conference (**ACM MM** 2017). Oral.

Jianshu Li, **Jian Zhao**, Fang Zhao, Hao Liu, Jing Li, Shengmei Shen, Jiashi Feng, and Terence Sim. *Robust Face Recognition with Deep Multi-View Representation Learning*. ACM Multimedia Conference (**ACM MM** 2016).

# Workshop论文

**Jian Zhao**, Jianshu Li, Xuecheng Nie, Yunpeng Chen, Zhecan Wang, Shuicheng Yan, Jiashi Feng. *Self-Supervised Neural Aggregation Networks for Human Parsing*. Workshop on *Visual Understanding of Humans in Crowd Scene* with with CVPR 2017.

**Jian Zhao**, Jianshu Li, Xuecheng Nie, Yunpeng Chen, Zhecan Wang, Shuicheng Yan, Jiashi Feng. Self-Supervised Neural Aggregation Networks for Human

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Yu Cheng\*, **Jian Zhao**\*, Zhecan Wang, Yan Xu, Karlekar Jayashree, Shengmei Shen, Jiashi Feng. *Know You at One Glance: A Compact Vector Representation for Low-Shot Learning*. Workshop on *MS-Celeb-1M Challenge* with ICCV 2017. (\* indicates equal contribution).

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Yan Xu, Yu Cheng, **Jian Zhao**, Zhecan Wang, Lin Xiong, Karlekar Jayashree, Sugiri Pranata, Shengmei Shen, Jiashi Feng. *High Performance Large Scale Face Recognition with Multi-Cognition Softmax and Feature Retrieval*. Workshop on *MS-Celeb-1M Challenge* with ICCV 2017.

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# 受邀报告 基于深度学习的人物图像理解

将门,中国,2018.

VALSE Webinar, 中国, 2018.

### 人脸分析

OmniVision, 新加坡, 2018

新加坡国立大学, 2018.

# 科研活动 组织者

CVPR 2018群体场景下人物图像理解Workshop以及相应的细粒度多人解析与姿态估计竞赛.

### 程序委员会成员

ECCV 2018计算机视觉紧致、高效特征表示学习Workshop.

# 审稿人

T-MM, T-IFS, CSSP, NIPS (获NIPS 2018前30%最佳审稿人), CVPR, ACM MM, AAAI, ICLR, ICML.

# 爱好

旅行,健身,综合格斗,巴西柔术(巴西柔术蓝带).

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