

Jianfei Yang

PHD CANDIDATE · GEEK

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Research Interests

My research focuses on developing transfer learning algorithms to enhance the generalization of deep learning models. I am interested in tackling the problem of lack of high-quality annotated data confronting various tasks. Revolving this goal, I mainly study the following topics:

- **Machine learning:** transfer learning, especially domain adaptation, multi-task learning, few-shot learning
- **Smart sensing:** sensing technology under challenging circumstances (limited annotations or noisy data) such as WiFi sensing under spatial dynamics and visual recognition in dark environment
- **Interdisciplinary research:** ubiquitous smart sensing based on Internet of Things (IoT), computer-aided structural and earthquake engineering, vision-based identification for animal husbandry, face expression recognition and analysis

Education

Nanyang Technological University

PH.D., SCHOOL OF ELECTRICAL AND ELECTRONIC ENGINEERING

Supervisor: IEEE Fellow, IFAC Fellow, Prof. Lihua Xie

Singapore

2016 - 2020

Sun Yat-sen University

B.S., DEPARTMENT OF DATA AND COMPUTER SCIENCE

Guangzhou, China

2012 - 2016

Experience

Chinese Academy of Science

COMPUTER VISION ADVISOR

- Mentor students and offer professional suggestions on machine learning.

Beijing, China

April 2019 - Present

DJI

VISION ENGINEER INTERN

- Develop an efficient and robust visual tracking algorithm for robotics.

Shenzhen, China

June 2014 - Sep 2014

Honors & Awards

INTERNATIONAL

2020	3rd Place Winner , IEEE CVPR 2020 EmotionNet Challenge	Seattle, USA
2019	Winner , IEEE CVPR 2019 UG2+ Challenge (Zero-shot Detection in Rain)	Long beach, USA
2018	Winner , PEER Hub ImageNet Challenge by Pacific Earthquake Engineering Research Center	Los Angeles, USA
2018	Winner , ACM ICMI 2018 Emotion Recognition Challenge	Colorado, USA
2017	Winner (1/771) , JD Global Data Challenge (Livestock face recognition)	Beijing, China
2017	Winner (1/120) , Buildathon of Singapore by Ministry of Education (Singapore)	Singapore
2016	Winner (1/20000) , Microsoft Beauty of Programming Challenge by Microsoft Research Asia	Shanghai, China
2015	Intel Prize , HackNTU (IoT Solutions for the developing countries)	Taipei, China
2015	Meritorious Winner , American Mathematical Contest In Modeling	USA

DOMESTIC

2020	4th Place Winner (4/4000) , National AI Challenge - Person Re-identification	Shenzhen
2019	Winner (1/617) , HUAWEI Cloud Garbage Recognition Challenge	Shanghai
2017	Winner-up (2/782) , Microsoft Imagine Cup in China	Shanghai
2016	Winner , China Mobile Internet of Things Hackathons	Guangzhou, China
2015	First Prize , National Mobile Internet Innovation Contest	Beijing, China
2015	First Prize , National Undergraduate IOT Design Contest by Ministry of Education (China)	Wuxi, China
2014	First Prize , Humanoid Robotics Hackathon by ALDEBARAN	Shenzhen, China
2013	Undergraduate First-class Scholarship (5% students) , Sun Yat-Sen University	Guangzhou, China

JOURNAL

MobileDA: Towards Mobile Domain Adaptation

JIANFEI YANG, HAN ZOU, SHUXIN CAO, ZHENGHUA CHEN, LIHUA XIE
IEEE Internet of Things Journal (IF=9.52)

IEEE IoTJ
2020

Learning Gestures from WiFi: A Siamese Recurrent Convolutional Architecture

JIANFEI YANG, HAN ZOU, YUXUN ZHOU, LIHUA XIE
IEEE Internet of Things Journal (IF=9.52)

IEEE IoTJ
2019

Device-free Occupancy Sensing Platform using WiFi-enabled IoT Devices for Smart Homes

JIANFEI YANG, HAN ZOU, HAO JIANG, LIHUA XIE
IEEE Internet of Things Journal (IF=9.52)

IEEE IoTJ
2018

CareFi: Sedentary Behavior Monitoring System via Commodity WiFi Infrastructures

JIANFEI YANG, HAN ZOU, HAO JIANG, LIHUA XIE
IEEE Transactions on Vehicular Technology (IF=5.34)

IEEE TVT
2018

Unsupervised WiFi-enabled IoT Device-User Association for Personalized Locationbased Service

HAN ZOU, YUXUN ZHOU, JIANFEI YANG, COSTAS SPANOS
IEEE Internet of Things Journal (IF=9.52)

IEEE IoTJ
2018

Automatic Adversarial Learning Enabled WiFi Indoor Radio Map Construction and Adaptation with Mobile Robot

HAN ZOU, ..., JIANFEI YANG, LIHUA XIE, COSTAS SPANOS
IEEE Internet of Things Journal (IF=9.52)

IEEE IoTJ
2020

Region attention networks for pose and occlusion robust facial expression recognition

KAI WANG, XIAOJIANG PENG, JIANFEI YANG, DEBIN MENG, YU QIAO
IEEE Transactions on Image Processing (IF=6.79)

IEEE TIP
2020

Advancing Image Understanding in Poor Visibility Environments: A Collective Benchmark Study

WENHAN YANG, ..., JIANFEI YANG
IEEE Transactions on Image Processing (IF=6.79)

IEEE TIP
2020

Transfer learning enhanced AR spatial registration for facility maintenance management

KEYU CHEN, JIANFEI YANG*, JACK CP CHENG, WEIWEI CHEN, CHUN TING LI
Automation in Construction (IF=4.31)

AUTOCON
2020

Towards occupant activity driven smart buildings via WiFi-enabled IoT devices and deep learning

HAN ZOU, YUXUN ZHOU, JIANFEI YANG, COSTAS SPANOS
Energy and Buildings 2017 (IF=4.50)

ENB
2018

WiFi Fingerprinting Indoor Localization Using Local Feature-Based Deep LSTM

ZHENGHUA CHEN, HAN ZOU, JIANFEI YANG, HAO JIANG, LIHUA XIE
IEEE Systems Journal (IF=4.46)

IEEE Systems
2018

Semantic-filtered Soft-Split-Aware video captioning with audio-augmented feature

YUECONG XUE, JIANFEI YANG, KEZHI MAO
Neurocomputing (IF=4.07)

Elsevier
2018

Non-intrusive Occupancy Sensing in Commercial Buildings

HAN ZOU, HAO JIANG, JIANFEI YANG, LIHUA XIE, COSTAS SPANOS
Energy and Buildings 2017 (IF=4.50)

ENB
2017

Compressive perceptual hashing tracking

LONG CHEN, ZHENG LI, JIANFEI YANG
Neurocomputing (IF=4.07)

Elsevier
2016

CONFERENCE

Mind the Discriminability: Asymmetric Adversarial Domain Adaptation

JIANFEI YANG, HAN ZOU, YUXUN ZHOU, ZHAOYANG ZENG, LIHUA XIE
European Conference on Computer Vision

ECCV 2020
2020

Suppressing Mislabeled Data via Grouping and Self-Attention ECCV 2020
XIAOJIANG PENG, KAI WANG, ZHAOYANG ZENG, QING LI, JIANFEI YANG, YU QIAO 2020
European Conference on Computer Vision

Suppressing Uncertainties for Large-Scale Facial Expression Recognition CVPR 2020
KAI WANG, XIAOJIANG PENG, JIANFEI YANG, SHIJIAN LU, YU QIAO 2020
IEEE International Conference on Computer Vision and Pattern Recognition 2020

Bootstrap Model Ensemble and Rank Loss for Engagement Intensity Regression ICMI 2020
KAI WANG*, JIANFEI YANG*, DA GUO, KAIPENG ZHANG, XIAOJIANG PENG, YU QIAO 2020
ACM International Conference on Multimodal Interaction 2020

Kervolutional Neural Network CVPR 2019
CHEN WANG, JIANFEI YANG, JUNSONG YUAN, LIHUA XIE 2019
IEEE International Conference on Computer Vision and Pattern Recognition 2019

WiFi and Vision Multimodal Learning for Accurate and Robust Device-Free Human Activity Recognition CVPR-19 Workshop
HAN ZOU, JIANFEI YANG, HARI PRASANNA DAS, ..., COSTAS J SPANOS 2019
CVPR-19 Multimodal workshop

Machine Learning empowered Occupancy Sensing for Smart Buildings ICML-19 Workshop
HAN ZOU, HARI PRASANNA DAS, JIANFEI YANG, ..., COSTAS J SPANOS 2019
ICML-19 Climate Change Workshop

Joint Adversarial Domain Adaptation for Resilient WiFi-Enabled Device-Free Gesture Recognition IEEE ICMLA-19
HAN ZOU, JIANFEI YANG, YUXUN ZHOU, COSTAS SPANOS 2019
IEEE International Conference on Machine Learning and Applications (ICMLA)

Deep Recurrent Multi-instance Learning with Spatio-temporal Features for Engagement Intensity Prediction ICMI-18
JIANFEI YANG, KAI WANG, XIAOJIANG PENG, YU QIAO 2018
ACM International Conference on Multimodal Interaction 2018

Cascade attention networks for group emotion recognition with face, body and image cues ICMI-18
KAI WANG, XIAOXING ZENG, JIANFEI YANG, DEBIN MENG XIAOJIANG PENG, YU QIAO 2018
ACM International Conference on Multimodal Interaction 2018

Consensus Adversarial Domain Adaptation AAAI-18
HAN ZOU, YUXUN ZHOU, JIANFEI YANG, COSTAS SPANOS 2018
AAAI Conference on Artificial Intelligence 2018

Robust WiFi-enabled device-free gesture recognition via unsupervised adversarial domain adaptation IEEE ICCCN-18
HAN ZOU, YUXUN ZHOU, JIANFEI YANG, LIHUA XIE, COSTAS SPANOS 2018
IEEE 27th International Conference on Computer Communication and Networks

DeepSense: Device-free human activity recognition via autoencoder long-term recurrent convolutional network IEEE ICC-18
HAN ZOU, YUXUN ZHOU, JIANFEI YANG, LIHUA XIE, COSTAS SPANOS 2018
IEEE International Conference on Communications 2018

WiFi-enabled device-free gesture recognition for smart home automation IEEE ICCA-17
HAN ZOU, YUXUN ZHOU, JIANFEI YANG, HAO JIANG, LIHUA XIE, COSTAS SPANOS 2017
IEEE 14th International Conference on Control and Automation (ICCA)

Poster: WiFi-based device-free human activity recognition via automatic representation learning IEEE Mobicom-17
HAN ZOU, YUXUN ZHOU, JIANFEI YANG, WEIXI GU, LIHUA XIE, COSTAS SPANOS 2017
23rd Annual International Conference on Mobile Computing

Fine-grained Adaptive Location-independent Activity Recognition using Commodity WiFi IEEE WCNC-17
JIANFEI YANG, HAN ZOU, HAO JIANG, LIHUA XIE 2017
IEEE Wireless Communications and Networking Conference 2017

Freecount: Device-free crowd counting with commodity WiFi IEEE Globecom-17
HAN ZOU, YUXUN ZHOU, JIANFEI YANG, WEIXI GU, LIHUA XIE, COSTAS SPANOS 2017
IEEE Global Communications Conference

WiFi-based Human Identification via Convex Tensor Shapelet Learning

HAN ZOU, YUXUN ZHOU, JIANFEI YANG, LIHUA XIE, COSTAS SPANOS

AAAI Conference on Artificial Intelligence 2017

AAAI-17

2017

Multiple kernel representation learning for WiFi-based human activity recognition

HAN ZOU, YUXUN ZHOU, JIANFEI YANG, WEIXI GU, LIHUA XIE, COSTAS SPANOS

IEEE International Conference on Machine Learning and Applications (ICMLA)

IEEE ICMLA-17

2017

Freedetector: Device-free occupancy detection with commodity wifi

HAN ZOU, YUXUN ZHOU, JIANFEI YANG, WEIXI GU, LIHUA XIE, COSTAS SPANOS

IEEE International Conference on Sensing, Communication and Networking (SECON Workshops)

IEEE SECON-17 Workshop

2017

Online Visual Tracking via Correlation Filter with Convolutional Networks

JIANFEI YANG, ZHENG LI, CHANG-DONG WANG, WEISHI ZHENG

IEEE International Conference on Visual Communications and Image Processing 2016

IEEE VCIP-16

2016

Compressive Perceptual Hashing Tracking with Online Foreground Learning

JIANFEI YANG, ZHENG LI, LONG CHEN, JUAN ZHA

IEEE International Conference on Robotics and Biomimetics 2015

IEEE ROBIO-15

2015

UNDER REVIEW

Towards Stable and Comprehensive Domain Alignment: Max-margin Domain-Adversarial Training

JIANFEI YANG, HAN ZOU, YUXUN ZHOU, LIHUA XIE

2020

Cluster-level Discrepancy Minimization for Imbalanced Domain Adaptation

JIANFEI YANG, JIANGANG YANG, HAN ZOU, SHUXIN CAO, SHIZHENG WANG, LIHUA XIE

2020

Attention-based Domain-confused Adversarial Domain Adaptation for Real-world Cross-domain Object Recognition

JIANFEI YANG, HAN ZOU, YUXUN ZHOU, LIHUA XIE

2020

Patents

PCT INTERNATIONAL PATENTS

2020 **Device-Free Human Identification and Device-Free Gesture Recognition,**

WO2020037313

2019 **Unsupervised WiFi-Enabled Device-User Association for Personalized Location-based Service,**

WO2019226910A1

CHINESE PATENTS

2018 **People Engagement Prediction by Facial Expression Recognition,**

TBD

2018 **Robot-aided WiFi-based Indoor Localization,**

TBD

Talks

2019 **Smart Sensing based on IoT and Transfer Learning,** Institute of Electronics, Chinese Academy of Sciences

Beijing, China

2018 **Multi-task Learning for Structural Engineering,** Pacific Earthquake Engineering Research Center

UCLA, USA

2018 **Vision-based Livestock Surveillance for Husbandry and Insurance,** National University of Singapore

Singapore

2018 **WiFi-based Human Activity Recognition,** IEEE WCNC 2018

Barcelona, Spain

2017 **Magic Mirror: An IoT and AI based Intelligent Toy,** Microsoft

Shanghai, China

2015 **Narrator: A Humanoid Robot Presenter with Markup Language,** ALDEBARAN

Shenzhen, China

2015 **SwordArt: A Real-Time AR Online Game,** Huazhong University of Science and Technology

Wuhan, China

Services

- **Journal Reviewer:** IEEE IoT Journal, IEEE Transactions on Cybernetics, IEEE Transactions on Mobile Computing, IEEE Wireless Communications Magazine, ACM Transactions on Spatial Algorithm and Systems, International Journal of Distributed Sensor Network, Information Fusion, IEEE Access

Skills

- **Deep learning framework:** Pytorch, Keras, Theano, Caffe
- **Programming languages:** C++, Python, MATLAB, Java, Scala, R, Javascript, HTML5, Verilog