

第十六届“数字电视与多媒体通信”国际论坛 暨“添翼”杯人工智能创新应用大赛

THE 16TH INTERNATIONAL FORUM OF DIGITAL TV & MULTIMEDIA COMMUNICATION

主办单位:

中国国际工业博览会组委会

指导单位:

上海市科学技术协会

承办单位:

上海市图像图形学学会

SPONSOR: ORGANIZING COMMITTEE OF
CHINA INTERNATIONAL INDUSTRY FAIR

SUPPORT: SHANGHAI ASSOCIATION FOR
SCIENCE & TECHNOLOGY

ORGANIZER: SHANGHAI IMAGE & GRAPHICS
ASSOCIATION (SIGA)

协办单位:

上海交通大学

中国电信上海公司

上海市信息家电行业协会

上海先进通信与数据科学研究院

上海市数字媒体处理与传输重点实验室

上海工程技术大学

上海依图网络科技有限公司

杭州数梦工场科技有限公司

中国电子学会青年科学家俱乐部

General Chairs

Xiaokang YANG (Shanghai Jiao Tong Univ., China)

Ping AN (Shanghai University, China)

Guangtao ZHAI (Shanghai Jiao Tong Univ., China)

Program Chairs

Jun ZHOU (Shanghai Jiao Tong Univ., China)

Yue LU (East China Normal Univ., China)

Hua YANG (Shanghai Jiao Tong Univ., China)

Jiantao ZHOU (University of Macau, Macau)

Competition Chairs

Yiyi LU (China Telecom Shanghai Branch, China)

Zhijun FANG (Shanghai Univ. of Tech. Sci., China)

Hanlong GUO (China Tele. Shanghai Branch, China)

International Liaisons

Weisi LIN (Nanyang Technological Univ., Singapore)

Patrick Le CALLET (Nantes Univ., France)

Lu ZHANG (INSA de Rennes, France)

Finance Chairs

Yi XU (Shanghai Jiao Tong Univ., China)

Lianghui DING (Shanghai Jiao Tong Univ., China)

Publications Chairs

Xianming LIU (Harbin Inst. of Tech., China)

Qiudong SUN (Shanghai Sec. Polytech. Univ., China)

Liquan SHEN (Shanghai Univ., China)

Award Chairs

Changwen CHEN (SUY Buffalo, USA)

Wenjun ZHANG (Shanghai Jiao Tong Univ., China)

Publicity Chairs:

Xiangyang XUE (Fudan Univ., China)

Yuming FANG (Jiangxi Univ. of Fin. & Eco., China)

Industrial Program Chairs:

Zhenning ZHANG (Think Force Inc., China)

Guozhong WANG (Shanghai University, China)

Arrangements Chairs:

Cheng ZHI (Secretary-General, SIGA, China)



徐树公 上海大学教授，
上海先进通信与数据科学
研究院院长
《AI+5G - the New
Era》

Abstract: Progresses in Mobile communication (4G/LTE etc.) have changed our lives. Now 5G is coming and wide deployment of 5G is under way. It has been widely expected to impact our society greatly if we can fully utilize the capability of 5G. In the same time, many applications using AI technologies are re-shaping the world. In this talk, we will talk about the recent progresses in 5G and AI, especially those new results from our labs, and explore on how AI+5G will be able to do for the future. New challenges and opportunities in the new era will be discussed as well.

Shugong Xu is an IEEE Fellow, a specially-appointed professor at Shanghai University, head of the Shanghai Institute for Advanced Communication and Data Science (SICS). In his 20+ years career in research (over 15 years in industrial research labs), he had over 40 issued US/WO/CN patents and published more than 100 peer-reviewed research papers. He was awarded "National Innovation Leadership Talent" from China government in 2013, IEEE Fellow in 2015. Shugong also won 2017 Award for Advances in Communication from IEEE Communication Society. His current research interests include V2X, wireless communication systems, and machine learning etc.



汪思佳 中科院马普学
会计算生物学伙伴研究
所研究员
《数据驱动的体验质量
测》

Abstract: The human phenome research requires high-throughput quantitative measurement of various levels of phenotypes. Image analysis becomes an important tool for measuring human appearance phenotypes. Here I am going to introduce several examples of image analysis on human appearance phenotypes, including 3D facial image analysis, DXA image analysis, facial aging feature analysis, etc. These examples show the necessity of using the right image analysis tools to solve the corresponding biological questions. These examples could also hopefully shed light on the novel application of image analysis in the field of biomedical research.

汪思佳，中国科学院-马普学会计算生物学伙伴研究所研究员、博士生导师。现任中国科学院计算生物学重点实验室副主任、中国科学院上海生物医学大数据中心副主任、国际人类表型组计划执行委员会常务委员兼秘书长。入选“国家青年千人计划”，先后获得国家基金委“优秀青年科学基金”与“重大研究计划”资助。在Cell、Am J Hum Genet等国际知名期刊上发表论文三十余篇，论文累计引用2000余次。担任Ann Hum Genet杂志的资深副主编。目前课题组的主要科研方向为开发及运用系统组学分析方法及人工智能算法，利用人群队列产生的生物大数据，构建人类外貌相关表型与基因及其它相关表型的互作网络，建立预测个体健康状况的算法模型。



周建涛 澳门大学科技
学院副教授，澳门大学
人工智能中心主任
《Robust Subspace
Clustering with
Independent and
Piecewise
Identically
Distributed Noise
Modeling》

Abstract: Most of the existing subspace clustering (SC) frameworks assume that the noise contaminating the data is generated by an independent and identically distributed (i.i.d.) source, where the Gaussianity is often imposed. Though these assumptions greatly simplify the underlying problems, they do not hold in many real-world applications. For instance, in face clustering, the noise is usually caused by random occlusions, local variations and unconstrained illuminations, which is essentially structural and hence satisfies neither the i.i.d. property nor the Gaussian. In this work, we propose an independent and piecewise identically distributed (i.p.i.d.) noise model, where the i.i.d. property only holds locally. We demonstrate that the i.p.i.d. model better characterizes the noise encountered in practical scenarios, and accommodates the traditional i.i.d. model as a special case. Assisted by this generalized noise model, we design an information theoretic learning (ITL) framework for robust SC through a novel minimum weighted error entropy (MWEE) criterion. Extensive experimental results show that our proposed SC scheme significantly outperforms the state-of-the-art competing algorithms.

周建涛博士，澳门大学科技学院副教授，人工智能中心主任，智慧城市物联网国家重点实验室城市大数据与智能技术研究室核心成员。多年来一直从事计算机视觉、图像处理、信息安全等方面的研究。在IEEE Trans. Image Processing, IEEE Trans. Signal Processing, IEEE Trans. Information Forensics and Security, IEEE Trans. Circuits and Systems for Video Technology, IEEE Trans. Multimedia等重要期刊发表论文50余篇。在IEEE CVPR, ACM Multimedia, IEEE ICIP, IEEE ICME, IEEE ICASSP等主流会议上发表论文70余篇。获授权的美国专利4项。曾入选中组部第五批青年千人。自2018年11月，担任图像处理领域顶级期刊IEEE Trans. Image Processing的副编辑(Associate Editor)。于2019年入选亚太信号与信息处理协会(APSIPA)杰出讲师 (Distinguished Lecturer)。



刘贤明 哈尔滨工业大学
计算机科学与技术学院教授
《Graph Signal
Processing ---- Theory
and Application》

Abstract: Graph signal processing (GSP) is the study of discrete signals that live on structured data kernels described by graphs. By allowing a more flexible graphical description of the underlying data kernel, GSP can be viewed as a generalization of traditional signal processing techniques that target signals in regular kernels, while still providing a frequency domain interpretation of the observed signals. Though an image is a regularly sampled signal on a 2D grid, one can nonetheless consider an image patch as a graph-signal on a sparsely connected graph defined signal-dependently. Recent GSP works have shown that such approach can lead to a compact signal representation in the graph Fourier domain, resulting in noticeable gain in image compression, restoration and enhancement. Specifically, in this talk, we will overview recent advances in GSP as applied to image processing. We will then describe how suitable graph-signal smoothness priors can be constructed for a graph-based image restoration and enhancement problems.

刘贤明，国家自然科学基金优秀青年基金获得者，现任哈尔滨工业大学计算机科学与技术学院教授、博士生导师。分别于2006年、2008年和2012年从哈工大计算机学院获得学士、硕士和博士学位。博士毕业后，先后在加拿大麦克马斯特大学、日本国立情报学研究所担任博士后和特任研究员。2013年4月留校任教担任讲师，2014年秋和2016年秋两次入选哈工大青年拔尖人才支持计划，分别破格提升副教授、教授。主要从事多媒体信号处理相关研究。近年来围绕图像统计建模与重建发表论文70余篇，在CCF A类期刊、IEEE Transactions on Image Processing发表11篇第一作者长文，连续四年在数据压缩领域顶级会议IEEE Data Compression Conference发表4篇第一作者长文。获得获得第八届吴文俊人工智能优秀青年奖、IEEE ICME2016最佳学生论文奖。

议程安排 Schedule

2019.9.19

8:30-8:35	会议开始
8:35-9:10	徐树公 《AI+5G - the New Era》
9:10-9:45	汪思佳 《Image Analysis in Human Appearance Phenotype Research》
9:45-9:55	Coffee Break
9:55-10:30	周建涛 《Robust Subspace Clustering with Independent and Piecewise Identically Distributed Noise Modeling》
10:30-12:00	<p>Oral Session 每个报告12分钟汇报，3分钟提问</p> <ul style="list-style-type: none"> Fast Traffic Sign Detection Using Color-Specific Quaternion Gabor Filters. Shiqi Yin, Yi Xu Non-local Recoloring Algorithm for Color Vision Deficiencies with Naturalness and Detail Preserving. Yunlu Wang, Duo Li, Menghan Hu, Liming Cai and Guangtao Zhai A Generalized Cellular Automata Approach to Modelling Contagion and Monitoring for Emergent Events in Sensor Networks. Ru Huang, Hong-Yuan Yang, Hao-Chen Yang and Lei Ma Missing Elements Recovery using Low-Rank Tensor Completion and Total Variation Minimization. Jinglin Zhang, Mengjie Qin, Cong Bai and Jianwei Zheng Affective Video Content Analysis Based on Two Compact Audio-Visual Features. Xiaona Guo, Wei Zhong, Long Ye, Li Fang and Qin Zhang Multi-Scale Depthwise Seperable Convolutional Neural Network for Hyperspectral Image Classification. Jiliang Yan, Zhiwei Zhong, Deming Zhai, Xianming Liu and Junjun Jiang
12:00-13:15	Lunch
12:45-13:15	“添翼杯”参赛选手和相关人员签到
13:15-13:25	主持人介绍大赛情况
13:25-13:35	领导发言
13:35-13:45	主持人介绍评审安排
13:45-15:15	竞赛1: “添翼杯”智慧教育复赛答辩 每支团队10分钟演示，5分钟答辩
15:15-15:30	Coffee Break

15:30-17:00	竞赛2: “添翼杯”智慧环保赛道选手答辩 每支团队10分钟演示, 5分钟答辩
17:00-17:10	电信人工智能平台宣讲
17:10-17:30	宣布双赛道排名结果, 领导颁奖, 合照留影
18:00-20:00	Banquet

2019.9.20

8:45-9:30	刘贤明 《Graph Signal Processing —— Theory and Application》
9:30-9:45	Coffee Break
	Poster Session 每篇文章3分钟报告, 由专家评比墙报。
9:45-12:00	<ul style="list-style-type: none"> • Blind Panoramic Image Quality Assessment Based on Project-Weighted Local Binary Pattern Yumeng Xia, Yongfang Wang and Peng Ye • Unsupervised Representation Learning Based on Generative Adversarial Networks Shi Xu and Jia Wang • Large-Scale Video-based Person Re-Identification via Non-local Attention and Feature Erasing Zhao Yang, Zhigang Chang and Shibao Zheng • Interactive Face Liveness Detection Based on OpenVINO and Near Infrared Camera Na-Na Zhang, Jun Huang and Hui Zhang • Multi-scale Generative Adversarial Learning for Facial Attribute Transfer Yicheng Zhang, Li Song, Rong Xie and Wenjun Zhang • Convolutional-Block-Attention Dual Path Networks for Slide Transition Detection in Lecture Videos Minhuang Guan, Kai Li and Ran Ma • Blind 3D Image Quality Assessment Based on Multi-Scale Feature Learning Yongfang Wang, Yuan Shuai and Yumeng Xia • Design and Optimization of Crowd Behavior Analysis System Based on B/S Software Architecture Yuanhang He, Hua Yang, Jing Guo and Xiang Ji • Research on Influence of Content Diversity on Full-Reference Image Quality Assessment Huiqing Zhang, Shuo Li, Zhifang Xia, Weiling Chen and Lijuan Tang • Screen Content Picture Quality Evaluation by Colorful Sparse Reference Information Huiqing Zhang, Donghao Li, Shuo Li, Zhifang Xia and Lijuan Tang • Attention-based Top-down Single-task Action Recognition in Still Images Jinhai Yang, Yunxiang Yang, Xiang Ji and Hua Yang • Adaptive Person-Specific Appearance-Based Gaze Estimation Chuanyang Zheng, Jun Zhou and Jun Sun • Smoke Detection Based on Image Analysis Technology Huiqing Zhang, Jiayu Chen and Shuo Li • Preliminary Study on Visual Attention Maps of Experts and Nonexperts When Examining Pathological Microscopic Images Wangyang Yu, Menghan Hu, Shuning Xu and Qingli Li • PMIQD 2019: A Pathological Microscopic Image Quality Database with Nonexpert and Expert Scores Shuning Xu, Menghan Hu, Wangyang Yu, Jianlin Feng and Qingli Li • Few-Shot Learning for Crossing-Sentence Relation Classification Wen Wen, Yongbin Liu and Chunping Ouyang • Image Aligning and Stitching based on Multilayer Mesh Deformation Mingfu Xie, Jun Zhou and Xiao Gu • Image classification of submarine volcanic smog map based on convolution neural network Xiaoting Liu, Li Liu and Yuhui Chen • Point Cloud Classification via the views generated from coded streaming data Qianqian Li, Long Ye, Wei Zhong, Li Fang and Qin Zhang • Hyperspectral Image Super-resolution Using Multi-scale Feature Pyramid Network He Sun, Deming Zhai, Yi Niu, Xianming Liu and Junjun Jiang • Joint SPSL and CCWR for Chinese Short Text Entity Recognition and Linking Zhiming Liu, Zhiqiang Chong and Zhi Tang • Geometry-Guided View Synthesis with Local Nonuniform Plane-sweep Volume 奥李, 李方, 龙叶, 微钟 and 勤张 • Single View 3D Reconstruction with Category Information Learning Weihong Cao, Fei Hu, Long Ye and Qin Zhang • A Reading Assistant System for Blind People Based on Hand Gesture Recognition Qiang Lu, Guangtao Zhai, Xiongkuo Min and Yucheng Zhu • Intrusion Detection Based on Fusing Deep Neural Networks and Transfer Learning Yingying Xu, Zhi Liu, Yanmiao Li, Yushuo Zheng, Haixia Hou, Mingcheng Gao, Yongsheng Song and Yang Xin • Three-Dimensional Reconstruction of Intravascular Ultrasound Images Based on Deep Learning Yankun Cao, Zhi Liu, Xiaoyan Xiao, Yushuo Zheng, Lizhen Cui and Pengfei Zhang
12:00-13:15	Lunch