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上海市科学技术协会

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中国电子学会青年科学家俱乐部

主题报告 Keynote Speech

李志成
中国科学院深圳先进技术研究院研究员
《Artificial Intelligence in Medical Image Analysis: the Good, the Bad, and the Future》

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.

李志成，博士/博士后，中国科学院深圳先进技术研究院研究员，博士生导师。国家863计划青年科学家，广东省“特支计划”科技创新青年拔尖人才，深圳市孔雀计划海外高层次人才，深圳市后备级高层次人才。中国科学院青年创新促进会会员。研究方向是肿瘤影像-病理-基因人工智能分析。主持国家自然科学基金联合重点项目、面上项目和青年基金、科技部863项目、广东省省院战略合作项目、深圳市孔雀计划海外人才创新项目、深圳市基础研究学科布局项目、深圳市战略新兴产业专项基础研究项目等。参与科技部973、国自然仪器专项和国自然重点等项目。担任医学影像期刊《European Radiology》（IF = 4.101）编委。担任临床肿瘤期刊《Translational Oncology》（IF = 3.558）编委。获中国人工智能学会2019年度吴文俊技术发明二等奖。中国生物医学工程学会医学物理分会首届青年委员。欧洲放射学会通信会员。中国生物医学工程学会医学人工智能分会会员。中华医学会数字医学分会会员。深圳市医疗器械职称评审专家。

赵 岩
吉林大学通信工程学院教授
《True 3D light field display technology and Application》

Abstract: The future technologies of display are expected to support true 3D light field display. In this talk, I will mainly introduce the LED-based integral imaging display system, content generation algorithm of integral imaging, optical parameter matching and optimization of lens array, evaluation of integrated imaging display system and the application of integral imaging display in the future medical and health fields.

赵岩，吉林大学通信工程学院教授、博士生导师、副院长。2003年芬兰坦佩雷工业大学博士后研究员，2008年奥地利维也纳技术大学博士后，2013年加拿大渥太华大学访问教授。第九届吉林省青年科技奖获得者。吉林省图像图形学会秘书长，中国图象图形学学会图象应用与系统集成专委会和图象视频处理与通信专委会委员，主持多项国家级项目，发表学术论文70余篇，授权国际国内发明专利20余项，主要学术研究方向包括图像与视频编码、真三维光场成像和数字视觉等。

陶大程
澳大利亚科学院院士，悉尼大学计算机科学学院教授
《AI for Quest Deep Learning》

Abstract: What is artificial intelligence? According to the explanation of Wikipedia, artificial intelligence is the intelligence displayed by machines. The purpose of artificial intelligence is to imitate human intelligence with machines, which requires us to understand human intelligence. Human intelligence includes four aspects, Perceiving, Learning, Reasoning and Behaving. Deep learning seems to have completely changed the basic programs and ideas of machine vision research. It can be said that today's machine vision is almost inseparable from deep learning. Is the current deep learning just a simple stack of network layers? Our work definitely answers this question: the hierarchical structure is the key guarantee for the generalization ability of deep neural networks. Learning and manipulating the probability distribution of real-world data (such as images) is one of the main goals of statistics and machine learning, and the Deep Generative Adversarial Network (GAN) proposed in recent years is a common method for learning the probability distribution of complex data.

Dacheng Tao is Professor of Computer Science and ARC Laureate Fellow in the School of Computer Science and the Faculty of Engineering, and the Inaugural Director of the UBTECH Sydney Artificial Intelligence Centre, at The University of Sydney. His research results in artificial intelligence have expounded in one monograph and 200+ publications at prestigious journals and prominent conferences, such as IEEE TPAMI, IJCV, AIJ, AAAI, IJCAI, NeurIPS, ICML, CVPR, ICCV, ECCV, ICDM, and KDD, with several best paper awards. He received the 2018 IEEE ICDM Research Contributions Award and the 2015 Australian Museum Scopus-Eureka prize. He is a Fellow of the IEEE, ACM, AAAS and the Australian Academy of Science.

张晓平
加拿大工程院院士
加拿大Ryerson大学教授
《Statistical Model based Multimedia Security and Data Hiding》

Abstract: With easy generation of deep fake multimedia content, practical content-based multimedia security and data hiding technologies are desired. In this talk, we discuss a statistical model based multimedia security and data hiding framework with a few example methods. First, we discuss a new multiscale fragile watermarking scheme based on the Gaussian mixture model (GMM) in the wavelet domain. The GMM model parameters of different watermarking blocks are adjusted to form certain relationships as fragile watermarks for authentication. Compared with conventional fragile watermark techniques, this new statistical model based method modifies only a small amount of image data such that the distortion on the host image is imperceptible. The method detects and localizes image tampering and help distinguish some normal image operations such as JPEG compression from malicious image attacks. Second, we present novel data hiding schemes using the minimum distortion look-up table (LUT) embedding that achieves good distortion-robustness performance by statistical analysis of the host data. Theoretical analysis and numerical results show that the new LUT design achieves not only less distortion but also more robustness than the traditional LUT based data embedding schemes under various attacks such as Gaussian noise and JPEG compression. Last, we briefly discuss color image watermarking based on human visual system using spatio-chromatic image transform such as quaternion Fourier transform (QFT).

Xiao-Ping Zhang received B.S. and Ph.D. degrees from Tsinghua University, in 1992 and 1996, respectively, both in Electronic Engineering. He holds an MBA in Finance, Economics and Entrepreneurship with Honors from the University of Chicago Booth School of Business, Chicago, IL. He is a Fellow of Canadian Academy of Engineering. He is now Professor, Director of Communication and Signal Processing Applications Laboratory (CASPAL). His research interests include statistical signal processing and big data analytics, multimedia content analysis, sensor networks and electronic systems, machine learning/AI, and applications in bioinformatics, finance, and marketing. He is/was an Associate Editor for IEEE Transactions on Signal Processing, IEEE Transactions on Image Processing, IEEE Transactions on Multimedia, IEEE Transactions on Circuits and Systems for Video Technology, and IEEE Signal Processing Letters.

议程安排 Schedule

2020.12.2

8:30-8:35	会议开始
8:35-9:15	**李志成 《Artificial Intelligence in Medical Image Analysis: the Good, the Bad, and the Future》**
9:15-10:00	**陶大程 《AI for Quest Deep Learning》**
10:00-10:20	**Coffee Break**
10:20-12:00	Oral Session 每个报告12分钟汇报，3分钟提问 • Bi-LSTM based on attention mechanism for emotion analysis. Hanyang Song, Dan-Ting Duan and Long Ye • Research on Face Aging Synthesis Based on Hybrid Domain Attention Mechanism. Liuyin Dong, Xiangfen Zhang, Fei Niu Yuan and Chuanjiang Li • Online Latent Dirichlet Allocation Model based on Sentiment Polarity Time Series. Bo Huang, Huan Chen and Yimin Zhu • FaceCode: An Artistic Face Image with Invisible Hyperlink. Yi Deng, Jun Jia, Dandan Zhu and Guangtao Zhai • GaLNet: Weakly-Supervised Learning for Evidence-Based Tumor Grading and Localization in MR Imaging. Tianqing Ding, Zhenyu Zhang, Jing Yan, Qiuchang Sun, Yuanshen Zhao and Zhi-Cheng Li • Single Image Deraining via Multi-scale Gated Feature Enhancement Network. Hao Luo, Hanxiao Luo, Qingbo Wu, King Ngi Ngan, Hongliang Li, Fanman Meng and Linfeng Xu
12:00-13:15	Lunch

13:40-14:15	**赵　岩　《True 3D light field display technology and Application》**
14:15-14:50	**张晓平　《Statistical Model based Multimedia Security and Data Hiding》**
14:50-15:00	**Break**
15:00-17:30	Poster Session 由专家评比墙报 • Recurrent Multi-column 3D Convolution Network for Video Super-Resolution, Junjie Lian, Yongfang Wang and Chuang Wang • An Equalizing Method to Improve the Positioning Effect of a Multi-Channel Headphone, Xinyan Hao • LEARNING A NO REFERENCE QUALITY ASSESSMENT METRIC FOR ENCODED 4K-UHD VIDEO, Jingwen Xu, Yu Dong, Li Song, Xie Rong, Sixin Lin and Yaqing Li • Accelerated Object Detection for Autonomous Driving in CVIS Based on Pruned CNN Architecture, Changyi Wang, Liang Qian, Lianghui Ding, Feng Yang and Cheng Zhi • Light Field Reconstruction with Arbitrary Angular Resolution Using a Deep Coarse-to-fine Framework, Ran Li, Li Fang, Long Ye, Wei Zhong and Qin Zhang • Visual and Audio Synchronization of Pedestrian Footstep Based on Human Pose Estimation, Qiutang Qi, Xi Ma, Chuanzhen Li and Long Ye • DBC: Dynamic Buffer Control of Bitrate in Video Streaming, Tong Liu, Lianghui Ding, Feng Yang, Liang Qian and Cheng Zhi • The Generative Adversarial Network Based on Attention Mechanism for Image Defogging, Qingyi Zhang, Changhao Zhao, Xiangfen Zhang, Feiniu Yuan and Chuanjiang Li • An image defogging algorithm based on red dark channel prior and adaptive correction, Qingyi Zhang, Changhao Zhao, Xiangfen Zhang, Feiniu Yuan and Chuanjiang Li • Human instance segmentation, Cheng Guo Ju • NCLRNet: A Shallow Network and Non-convex Low-rank based Fabric defect detection, Ban Jiang, Chunlei Li, Zhoufeng Liu, Yaru Zhao and Yun Huang • Saliency Model based on Discriminative Feature and Bi-directional Message Interaction for Fabric defect detection, Zhoufeng Liu, Menghan Wang, Chunlei Li, Zhenduo Guo and Jinjin Wang • An Empirical Study of Text Factors and Their Effects on Chinese Writer Identification, Yu-Jie Xiong • Events-to-Frame: Bringing visual tracking algorithm to Event Cameras, Sixian Chan, Qianqian Liu, Xiaolong Zhou, Cong Bai and Nan Chen • Light field image depth estimation method based on super-resolution cooperative reconstruction, Ming Yang, Shigang Wang, Jian Wei and Yan Zhao • UAV Aerial Image Detection Based On Improved FCOS Algorithm, Pengju Zhang, Peimin Yan, Tao Zhang, Wennan Cui and Qiuyu Zhu • Optimization-Based Tone Mapping Evaluation, Huiqing Zhang, Donghao Li, Li Wu and Weiling Chen • Extending Chest X-Ray with Multi Label Disease Sequence, Anqi Zheng, Cong Bai and Ning Liu • Synchronous Prediction of Continuous Affective Video Content Based on Multi-Task Learning, Mingda Zhang, Wei Zhong, Long Ye, Li Fang and Qin Zhang • Insights of Feature Fusion for Video Memorability Prediction, Fumei Yue, Jing Li and Jiande Sun • QoE Assessment and Management of MV/3D Video Services, Yiwen Xu, Jingquan Huang, Qingxu Lin, Weiling Chen and Tiesong Zhao • Image Retrieval under Fine-grained and long-tailed Distribution, Shuai Chen, Fanman Meng, Qingbo Wu, Yuxuan Liu and Yaofeng Yang • Cancelable Face Recogntion with Mask, Chengcheng Liu, Jing Li, Hui Ji, Wenbo Wan and Jiande Sun • Multispectral Image Denoising by Spatial-spectral Residual Network, Xiujuan Lang, Tao Lu and Jiaming Wang • Light Field Stitching Based on Mesh Deformation, Chao Xue, Ping An and Yilei Chen • Adaptive Noise Injection for Quality Improvement of Blurry Images, Yiming Yang and Guangtao Zhai • CZ-Base: A Database for Hand Gestures Recognition in Chinese Zither Intelligence Education, Wenting Zhao, Shigang Wang, Tianshu Li, Jiehua Lin, Yan Zhao and Jian Wei • Integral Image Generation Based on Improved BVH Ray Tracing, Tianshu Li, Shigang Wang, Hongbin Cheng, Jian Wei and Yan Zhao • Adaptive Enhancement Technology For Screen Content Photos, Yazhen Zhou, Dakurah Collins Kyefondeme, Huayi Zhou, Min Zhao, Nan Guo and Yonghui Zhang • A Novel Hand Gesture Recognition System, Ying Zhao and Ming Li • Scene-oriented Aesthetic Image Assessment, Rui Liu, Haoran Zhang, Lv Yan, Xin Tian and Zheng Zhou • Screening of Autism Spectrum Disorder using Novel Biological Motion Stimuli. Lei Fan, Wei Cao, Huiyu Duan, Yasong Du, Jing Chen, Siqian Hou, Hong Zhu, Na Xu, Jiantao Zhou and Guangtao Zhai
18:00-20:00	Banquet