**Final Program**

### **ICIS2022**

5th International Conference

On

**Intelligence Science**

October 28-31, 2022

Xi'an, China





**CC**

**IS4SIS**

### **Technical Program**

### 5th International Conference on

**IntelligenceScience**（**ICIS2022**）

October 28-31, 2022

Xi'an, China

**Sponsored by**

Chinese Association for Artificial Intelligence (CAAI)
China Chapter under International Society for Information Studies

**Organizers**

Xidian University, China

**Co-Organizer**

CAAI Intelligence Science and Mind Computation Technical Committee

(in Preparation), China

**Support**

IFIP Technical Committee 12

**The conference is taken on-line, please install ZOOM conference software!**

**ICIS2022 RoomA**

Conference ID: 889 8638 2322（ZOOM）

Password:388707

Link: https://us06web.zoom.us/j/88986382322?pwd=Q3VKWFJWQ0Q4Q0xlRmRHc3k3SGxDdz09

**ICIS2022 RoomB**

Conference ID: 823 1373 4722（ZOOM）

Password: 444534

Link: https://us06web.zoom.us/j/82313734722?pwd=ak1CNnVORWpGaFkxMWcva0s5aXdWZz09

 **Conference Organization**

**General Chairs**

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Licheng Jiao Xidian University, China

**Program Committee Chairs**

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Zhiguo Zhou University of Kansas Medical Center, USA

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**Local Organization**

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###### Keynotes Speakers

Ⅰ Cognitive Interaction Technology

Helge Ritter

Neuroinformatics Group, Faculty of Technology, Bielefeld University, Germany

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**Abstract:** Intelligence as we see it in humans and some animals appears key to enable agents to cope with situations of high variability. This is still a challenge for AI systems which currently excel in focused domains for which abundant training data is available. To bring these methods to domains such as robotics, where physical interaction is a strong bottleneck for obtaining large data sets, is still a largely unsolved problem. Comparing artificial and natural cognitive agents reveals that the latter are much more capable of generalizing their skills to novel situations - a key capability to learn and act successfully when interaction data are costly and possibly even dangerous to obtain. Therefore, a key challenge for further progress is a better understanding of how a cognitive agent can represent situations with regard to relevance and generalizability of interaction skills under conditions of data parsimony. While we begin to see encouraging progress on this question when the focus is on the visual modality, actions in the real world require to complement vision with the management of physical contact in order to move the body or even manipulate objects. We argue that this requires to understand how to sense and represent "tactile situations" and point out how these are crucial for shaping physical interactions with the environment and enabling agents to control their hands in a way that exhibits "manual intelligence". We take a look at the challenges that are involved, how representing "tactile situations" needs to cover a hierarchy from low level sensing to high level cognition, and how we can create the necessary touch sensing and processing capabilities for dextrous robot hands. We present examples and results on dierent situations of tactile learning and action control in robotics contexts and point out ideas about how we can bring together these elements for creating manual intelligence anchored in the combined control of touch and vision. We manually comment on how this research fits with ideas and recent insights about how situations may be represented in the brain, and how connections between robotics and brain science can foster our scientific understanding and help to create better cognitive interaction technology in the future.

**Bio-Sketch:** Helge Ritter studied physics and mathematics at the Universities of Bayreuth, Heidelberg and Munich and received a Ph.D. in Physics from the Technical University of Munich in 1988. Since 1985, he has been engaged in research in the field of neural networks. In 1989 he moved as a guest scientist to the Laboratory of Computer and Information Science at Helsinki University of Technology. Subsequently he was assistant research professor at the then newly established Beckman Institute for Advanced Science and Technology and the Department of Physics at the University of Illinois at Urbana-Champaign. Since 1990, he is professor at the Department of Information Science, University of Bielefeld. In 1995, Helge Ritter spent one year as a fellow at the Institute of Advanced Studies in Berlin. His main interests are principles of neural computation, in particular self-organizing and learning systems, and their application to robot cognition, data analysis and interactive man-machine interfaces. In 1999, Helge Ritter was awarded the SEL Alcatel Research Prize and in 2001 the Leibniz Prize of the German Research Foundation DFG. Helge Ritter is co-founder and one of the directors of the Bielefeld Institute of Cognition and Robotics (CoR-Lab) and coordinator of the excellence cluster “Cognitive Interaction Technology”.

**Ⅱ Brain-like perception and cognition: challenges and thinking**

Licheng Jiao

### Department of Computer Science and Technology, Xidian University

### Key Laboratory of Intelligent Perception and Image Understanding of the Ministry of Education

### lchjiao@mail.xidian.edu.cn



**Abstract:** The intelligent interpretation of high-resolution remote sensing images is a technological high point that countries all over the world compete for. However, the high-resolution observation requirement brings difficulties to efficient target information acquisition, and the multi-scale singularity, complexity and diversity of targets greatly increase the difficulty of target modeling and target information learning and identification. Visual perception and brain cognition (sparseness, learning, selectivity and directionality) provide ideas for efficient and accurate high-resolution remote sensing image perception and interpretation. Drawing on the mechanism of biological visual cognition and perception, the acquisition (sense), interpretation (knowledge) and application (use) of high-resolution remote sensing information are studied..

**Bio-Sketch:** Jiao Licheng, Huashan Distinguished Professor, the Foreign member of the Academia Europaea, the Foreign member of the Russian Academy of Natural Sciences, and an IEEE Fellow. He is currently the director of the Department of Computer Science and Technology of Xidian University, the director of the Artificial Intelligence Research Institute, the director of the Key Laboratory of Intelligent Perception and Image Understanding of the Ministry of Education, a member of the Science and Technology Commission of the Ministry of Education, an expert of the Ministry of Education’s artificial intelligence technology innovation expert group, and one of the first batch of Selected into the National Million Talent Project (the first and second levels), the head of the innovation team of the Changjiang Scholars Program of the Ministry of Education, the chairman of the “Belt and Road” Artificial Intelligence Innovation Alliance, the chairman of the Shaanxi Artificial Intelligence Industry Technology Innovation Strategic Alliance, and the China Artificial Intelligence The 6th-7th Vice President of the Society, IEEE/IET/CAAI/CAA/CIE/CCF Fellow, has been selected as Elsevier’s Highly Cited Scholars for seven consecutive years. The main research directions are intelligent perception and quantum computing, image understanding and target recognition, deep learning and brain-like computing. He has won the second prize of the National Natural Science Award, Wu Wenjun Award for Outstanding Contribution to Artificial Intelligence, Huo Yingdong Young Teacher Award, the title of National Model Teacher, China Youth Science and Technology Award, and more than ten provincial and ministerial-level science and technology awards above.

Invited Speakers

Ⅰ Dealing with Concept Drifts in Data Streams

Xin Yao

Department of Computer Science and Engineering, Southern University of Science and Technology (SUSTech) Shenzhen, China

CERCIA, School of Computer Science, University of Birmingham Birmingham, UK

xiny@sustech.edu.cn



**Abstract:** One of the major challenges in machine learning is that future testing data are usually different from historical training data. What was learned from the historical data may or may not be appropriate for future data. In online learning of data streams, learned concepts may drift due to changes in underlying data distributions. How to detect and adapt to concept drifts have been an active research topic for many years. Such research has a wide range of real-world applications, e.g., in online fault diagnosis and condition monitoring. First, this talk introduces learning in the model space as an effective approach to deal with changes in data streams. Instead of trying to detect changes in a data stream directly, the approach first learns generative models of the data stream and then detect changes in such a model space. Second, this talk describes an ensemble learning approach (DDD: Diversity for Dealing with Drifts) to online learning with concept drift, where ensembles with different diversity levels are learned and adapted before and after a drift is detected. The impact of class imbalance is investigated in online learning with concept drift. Class evolution, i.e., class emergence and disappearance, in data streams will be discussed. An ensemble learning method, i.e., Diversity and Transfer-based Ensemble Learning (DTEL), that adapts selected base learners while maintaining ensemble diversity will be mentioned. Finally, the talk presents a Hierarchical Change Detection Test (HCDT) for explicit concept drift detection in data streams. Some concluding remarks will be made at the end of the talk.

**Biography** Xin Yao is a Chair Professor of Computer Science at the Southern University of Science and Technology (SUSTech), Shenzhen, China, and a part-time Professor of Computer Science at the University of Birmingham, UK. His major research interests include evolutionary computation, ensemble learning and their applications. In particular, he has been working on online ensemble learning in dealing with concept drifts in data streams, and applications in fault diagnosis and software defect prediction. He is an IEEE fellow, a former (2014-15) president of IEEE Computational Intelligence Society (CIS) and a former (20003-08) Editor-in-Chief of IEEE Transactions on Evolutionary Computation. His work won the 2001 IEEE Donald G. Fink Prize Paper Award, 2010, 2016 and 2017 IEEE Transactions on Evolutionary Computation Outstanding Paper Awards, 2010 BT Gordon Radley Award for Best Author of Innovation (Finalist), 2011 IEEE Transactions on Neural Networks Outstanding Paper Award, and many other best paper awards at conferences. He received a Royal Society Wolfson Research Merit Award in 2012, the IEEE CIS Evolutionary Computation Pioneer Award in 2013, and the 2020 IEEE Frank Rosenblatt Award.

**Ⅱ A Novel Bionic Imaging and Its Intelligent Processing**

Guangming Shi

College of Artificial Intelligence, Xidian University

Email：gmshi@xidian.edu.cn



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**Abstract:** It is great demand for effective imaging of moving targets in many industries, such as industrial intelligence manufacturing. However, traditional non-high-speed imaging is easy to cause blur, while high-speed imaging technology is too expensive. Inspired by the mechanism of biological vision, a novel bionic imaging technique and its corresponding intelligent processing algorithms is introduced in this report, which can effectively capture moving targets with low-cost.

**Biography** Guangming Shi, Professor and doctoral advisor of the School of Artificial Intelligence, Xidian University, he received the M.S. degree in computer control, and the Ph.D. degree in electronic information technology from Xidian University, Xi’an, China, in 1988, and 2002, respectively. He had studied and cooperated with the research group in UIUC of U.S. and University of Hong Kong. Currently, he is the vice-president of Xidian University. His research interest includes Artificial Intelligence, Intelligent Communications for Semantic, Human-Computer Interaction and so on. He is an IEEE /IET/CCF Fellow and the chair of IEEE CASS Xi’an Chapter, He was awarded Cheung Kong scholar Chair Professor by the ministry of education in 2012. And he won the second prize of the National Natural Science Award in 2017.

Ⅲ The Cognitive Computation Model for Behavior AI

Fuchun Sun

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**Abstract:** In the design of current AI systems, agents mostly use Markov Decision Process (MDP) or Partially Observable MDP for decision-making. Yet, since the three core components of an agent: perception, reasoning and action, are usually independent to each other, and the mapping from perception to action is often one-way and static, ignoring the physical structure and dynamic interaction process between perception and behavior, it is difficult for an agent to realize the utilization, growth and development of knowledge in a dynamically changing environment. Therefore, we put forward a new cognitive computation model called “Bcent”, short for Brain body co-development, which regards perception and behavior as two physical processes，dubbed as Perception Body and Behavior Body, respectively; meanwhile, the reasoning part connecting Perception Body and Behavior Body is called Cognition Body, which mainly accomplishes knowledge inference and cognitive development. In a nutshell, Perception Body and Behavior Body are physically structured and coordinate with each other under the command of Cognition Body. Bcent is a unity of learning, cooperation and promotion towards sensing, cognitive learning and action. In this talk, we will first introduce the theoretical methods and functional realization of the three core bodies in Bcent. Then the main research results of the multimodal perception, behavior based active perception and imitation learning are presented as well. Next, the applications of these theoretical methods in UAVs, mobile robots and oropharyngeal-swab robot are reported. Finally, the development trend of Bcent-based behavior AI is prospected.

**Bio Sketch:** Dr. Fuchun Sun is professor of Department of Computer Science and Technology, Tsinghua University, and deputy director of State Key Lab. of Intelligent Technology & Systems, Beijing, China. He serves as Vice Chairman of Chinese Association for Artificial Intelligence and Executive Director of Chinese Association for Automation. His research interests include robotic perception and skill learning，Cross-modal Learning and intelligent control. He has won the [Champion](http://www.baidu.com/link?url=wmzIyaajvVOaf9vTqbnkUDtCUtfM4tviEGI6UGVJl6DLHugWZKRMmLJtls-eORpPU5pwYlHclkJIX7oDpN-HVb6aUliX9iNDiy_ivS0uc9m) of Autonomous Grasp Challenges in IROS2016 and IROS 2019. He is elected as IEEE Fellow and CAAI Fellow in 2019, CAA Fellow in 2020.

Dr. Sun is the recipient of the excellent Doctoral Dissertation Prize of China in 2000 by MOE of China and the Choon-Gang Academic Award by Korea in 2003, and was recognized as a Distinguished Young Scholar in 2006 by the Natural Science Foundation of China. He served as the EIC of the Journal of Cognitive Computation and Systems, and associated editors of IEEE Trans. on Neural Networks and Learning Systems during 2006-2010, IEEE Trans. On Fuzzy Systems since 2011, IEEE Trans. on Cognitive and Development Systems since 2018 and IEEE Trans. on Systems, Man and Cybernetics: Systems since 2015.

Ⅳ Emerging Artificial Intelligence Technologies in Healthcare

Huiyu Zhou

School of Computing and Mathematical Sciences, University of Leicester, UK.

hz143@leicester.ac.uk

 **Abstract:** Artificial intelligence has significantly influenced the health sector for years by delivering novel assistive technologies from robotic surgery to versatile biosensors that enable remote diagnosis and efficient treatment. While the COVID-19 pandemic is devastating, the uses of AI in the healthcare sector are dramatically increasing and it is a critical time to look at its impact in different Artificial intelligence has significantly influenced the health sector for years by delivering novel assistive technologies from robotic surgery to versatile biosensors that enable remote diagnosis and efficient treatment. While the COVID-19 pandemic is devastating, the uses of AI in the healthcare sector are dramatically increasing and it is a critical time to look at its impact in different aspects. In this talk, I will introduce the application of new deep learning models in medical image understanding. Then, I will discuss Parkinson’s disease (PD) whilst investigating the behaviour analysis of PD mice. I also present the use of machine learning technologies in sentiment analysis, followed by the discussion on several challenges.

**Bio Sketch:** Prof. Huiyu Zhou received a Bachelor of Engineering degree in Radio Technology from Huazhong University of Science and Technology of China, and a Master of Science degree in Biomedical Engineering from University of Dundee of United Kingdom, respectively. He was awarded a Doctor of Philosophy degree in Computer Vision from Heriot-Watt University, Edinburgh, United Kingdom. Dr. Zhou currently is a full Professor at School of Computing and Mathematical Sciences, University of Leicester, United Kingdom. He has published over 400 peer-reviewed papers in the field. He was the recipient of "CVIU 2012 Most Cited Paper Award", “MIUA 2020 Best Paper Award”, “ICPRAM 2016 Best Paper Award” and was nominated for “ICPRAM 2017 Best Student Paper Award” and "MBEC 2006 Nightingale Prize". His research work has been or is being supported by UK EPSRC, ESRC, AHRC, MRC, EU, Royal Society, Leverhulme Trust, Puffin Trust, Alzheimer’s Research UK, Invest NI and industry.

Homepage: <https://www2.le.ac.uk/departments/informatics/people/huiyu-zhou>.

Ⅴ Memory Cognition

Zhongzhi Shi

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Institute of Computing Technology, Chinese Academy of Sciences

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shizz@ict.ac.cn

 **Abstract:** Memory is the core cognitive function of human beings. It is one of the most concerned topics in the field of intelligence science and artificial intelligence. Memory is the basis of learning and intelligence. It is the bridge and link between human spiritual activities and intelligent system simulation. With the support of the national 973 projects, we carried out research on memory cognition and put forward mind model CAM, cognitive model on brain computer integration, etc. In this talk, I will focus on mind model CAM, memory classifications and the integration of memory and computing.

**Bio-Sketch:** Zhongzhi Shi, Professor at the Institute of Computing Technology, Chinese Academy of Sciences. Fellow of CCF and CAAI. IEEE senior members, AAAI, ACM members. His research interests mainly contain intelligence science, artificial intelligence, multi-agent systems, machine learning. He has been responsible for 973, 863, key projects of NSFC. He has been awarded with various honors, such as National Science and Technology Progress Award (2002), Beijing Municipal Science and Technology Award (2006), the Achievement Award of Wu Wenjun artificial intelligence science and technology by CAAI (2013), the Achievement Award of Multi-Agent Systems by China Multi-Agent Systems Technical Group of AIPR, CCF (2016). He has published 16 books, including "Mind Computation", "Intelligence Science", "Advanced Artificial Intelligence", "Principles of Machine Learning". Published more than 500 academic papers. He served as chair of the machine learning and data mining group, IFIP TC12. He served as Secretary-General of China Computer Federation, vice chair of China Association of Artificial Intelligence.

**Overview of Technical Program**

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| **October 28 Friday** |
| 8:00-18:00 | Registration |
| **October 29 Saturday** |
| 9:00-9:15 | **ICIS2022 Opening Ceremony** | Conference Room: ICIS2022 RoomA |
| 9:15-10: 00 | **Plenary Session 1** | Conference Room: ICIS2022 RoomA |
| 10:00-10:30 | Coffee Break |
| 10:30-12:00 | **Plenary Session 2** | Conference Room: ICIS2022 RoomA |
| 12:00-13:30 | Lunch Break |
| 13:30-15:30 | **Session A1**Brain CognitionConference Room: ICIS2022 RoomA | **Session B1**Machine Leaning Conference Room: ICIS2022 RoomB |
| 15:30-16:00 | Coffee Break |
| 16:00-18:00 | **Session A2**Data Intelligence & Medical AI and WirelessConference Room: ICIS2022 RoomA | **Session B2**Peceptual IntelligenceConference Room: ICIS2022 RoomB |
| **Sunday October 30** |
| 9:00-10:30 | **Plenary Session 3** | Conference Room: ICIS2022 RoomA |
| 10:30-11:00  | Coffee Break |
| 11:00-12:00 | **Session A3**Language Cognition Conference Room: ICIS2022 RoomA | **Session B3**Peceptual Intelligence Conference Room: ICIS2022 RoomB |
| 12:00-13:30 | Lunch Break |
| 13:30-15:30 | **Plenary Session 4** | Conference Room: ICIS2022 RoomA |
| 15:30-16:00 | Coffee Break |
| 16:00-18:00 | **Session A4**Remote Sensing Images Conference Room: ICIS2022 RoomA | **Session B4**Peceptual Intelligence Conference Room: ICIS2022 RoomB |

**ICIS2022 RoomA**

Conference ID: 889 8638 2322（ZOOM）

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**Technical Program**

**Friday October 28, 2022**

8:00am – 6:00pm: Registration

**Saturday October 29, 2022**

**9:00am-9:15am: ICIS2022 Opening Ceremony**

**Chair: Biao Hou, Organization Chair**

**Conference Room: ICIS2022 RoomA**

Licheng Jiao: Greetings from General Chairs , Welcome from Xidian University

Zhongzhi Shi: Introduction to ICIS2022 Program

**9:15-10: 00 :Plenary Session 1**

**Chair: Zhongzhi Shi**

**Conference Room: ICIS2022 RoomA**

Licheng Jiao: Brain-like perception and cognition: challenges and thinking

**10:00am-10:30am Coffee Break**

**10:30am-12:00am: Plenary Session 2**

**Chair:** Xiangrong Zhang

**Conference Room: ICIS2022 RoomA**

Xin Yao: Dealing with Concept Drifts in Data Streams

Guangming Shi: A Novel Bionic Imaging and Its Intelligent Processing

**12:0**0**pm-1:30pm: Lunch Break**

**1:30pm– 3:30pm: Parallel Sessions**

**Session A1: Brain Cognition & Language Cognition**

**Chair: Shuiping Gou**

**Conference Room: ICIS2022 RoomA**

1. Mouse-Brain Topology improved Evolutionary Neural Network for Efficient Reinforcement Learning

*Xuan Han, Kebin Jia and Tielin Zhang*

2. DNM-SNN：Spiking Neural Network Based on Dual Network Model

*Zhen Cao, Hongwei Zhang, Qian Wang and Chuanfeng Ma*

3. A Memetic Algorithm Based on Adaptive Simulated Annealing for Community Detection

*Jie Yang, Yifei Sun, Shi Cheng, Kun Bian, Zhuo Liu, Xin Sun and Yifei Cao*

4. Research on the Model of Self Based on Need Evolution

*Bo Wen Sun and Xiaofeng Wang*

5.Spiking Neuron Network Based on VTEAM Memristor and MOSFET-LIF Neuron

*Jiahui Fu, Shuiping Gou and Zhang Guo*

6. BA-GAN: Bidirectional attention generation adversarial network for text-to-image synthesis

*Ting Yang, Xiaolin Tian, Nan Jia, Yuan Gao and Licheng Jiao*

7. Personalized Recommendation Using Extreme Individual Guided and Adaptive Strategies

*Yifei Cao, Yifei Sun, Shi Cheng, Kun Bian, Zhuo Liu, Xin Sun and Jie Yang*

**Session B1: Machine Leaning**

**Chair: Shuang Wang**

**Conference Room: ICIS2022 RoomB**

1. A Deception Jamming Discrimination Method Based on Semi-Supervised Learning with Generative Adversarial Networks

*Hongliang Luo, Jieyi Liu, Jingyao Liu, Yue Wu and Yaru Yin*

2. Fast Node Selection of Networked Radar based on Transfer Reinforcement Learning

*Yanjun Cao, Yuan Wang, Jingjing Guo, Li Han, Chao Zhang, Tianyang Zhang and Xiangrong Zhang*

3.Weakly Supervised Liver Tumor Segmentation Based on Anchor Box and Adversarial Complementary Learning

*Mengyao Fan, Haofeng Liu, Zhenyu Zhu, Changzhe Jiao and Shuiping Gou*

4.Weakly Supervised Whole Cardiac Segmentation via Attentional CNN

*Erlei Zhang, Minghui Sima, Jun Wang, Jinye Peng and Jinglei Li*

5. Noisy Label Learning in Deep Learning

*Xuefeng Liang, Longshan Yao and Xingyu Liu*

6. Accelerating Deep Convolutional Neural Network Inference Based on OpenCL

*Yong Wu, Huming Zhu, Lingyun Zhang, Biao Hou and Licheng Jiao*

7. A Simple Approach to the Multiple Source Identification of Information Diffusion

 *Xiaojie Li, Xin Yu, Chubing Guo and Yuxin Wang*

**3:30pm-4:00pm: Coffee Break**

**4:00pm-6:00pm: Parallel Sessions**

**Session A2: Data Intelligence & Medical Artificial Intelligence and Wireless Sensor**

**Chair: Xu Tang**

**Conference Room: ICIS2022 RoomA**

1. A Directed Search Many Objective Optimization Algorithm Embodied with Kernel Clustering strategy

*Michael Aggrey Okoth, Ronghua Shang, Weitong Zhang and Licheng Jiao*

2. A Two-Branch Neural Network Based on Superpixel Segmentation and Auxiliary Samples

*Zhidong Dong, Caihong Mu, Haikun Yu and Yi Liu*

3. Augmentation Based Synthetic Sampling and Ensemble Techniques for Imbalanced Data

*Wakjira Mulugeta Asefaw, Ronghua Shang, Michael Aggrey Okoth and Li-cheng Jiao*

4. Knowledge Learning without Forgetting for the Detection of Alzheimer’s Disease

 *Ruotong Liu, Yue Yin, Jing Bai and Xu Wang*

5. CA-ConvNeXt:Coordinate Attention on ConvNeXt for Early Alzheimer’s disease classification

*Weikang Jin, Yue Yin and Jing Bai*

6. Data Augmentation Method on Pine Wilt Disease Recognition

*Weibin Li, Bingzhen An and Yuhui Kong*

7. An Adaptive Spatial Network for UAV Image Real-time Semantic Segmentation

 *Qian Wu, Jiayu Song, Yanbo Luo, Hao Li, Qi Wang, Jinglong Gao, Zhuoran Jia and Qin Tian*

**Session B2: Peceptual Intelligence**

**Chair: Bo Ren**

**Conference Room: ICIS2022 RoomB**

1. Dual Siamese Channel Attention Networks for Visual Object Tracking

*Wenxing Gao, Xiaolin Tian, Nan Jia, Yifan Zhang and Licheng Jiao*

2. Motion-Aligned and Hardness-Aware Dynamic Update Network for Weakly-Supervised Vehicle Detection in Satellite Videos

*Quanpeng Jiang, Jie Feng, Yuping Liang, Ziyu Zhou, Xiangrong Zhang and Licheng Jiao*

3. A Multi-level Mixed Perception Network for Hyperspectral Image Classification

*Huai Wang, Qinghua He and Miaomiao Liang*

4. A Lightweight SAR Ship Detection Network Based on Superpixel Statistical Modeling

 *Zhengxi Guo, Biao Hou and Bo Ren*

5.Background Augmentation With Transformer-based Autoencoder for Hyperspectral Anomaly Detection

 *Jianing Wang, Yichen Liu and Linhao Li*

6. Point Cloud Registration Based on Global and Local Feature Fusion

*Wenping Ma, Mingyu Yue, Yongzhe Yuan, Yue Wu, Hao Zhu and Licheng Jiao*

7. Gaussian Balanced Sampling for End-to-End pedestrian detector

*Yang Yang, Jun Li, Biao Hou and Bo Ren*

**Sunday October 30**

**9:00-10:30 Plenary Session 3**

**Chair: Zhongzhi Shi**

**Conference Room: ICIS2022 RoomA**

Fuchun Sun: The Cognitive Computation Model for Behavior AI

Zhongzhi Shi: Memory Cognition

**10:30am-11:00am Coffee Break**

**11:00am-12:00am: Parallel Sessions**

**Session A3: Language Cognition**

**Chair:** **Yuwei Guo**

**Conference Room: ICIS2022 RoomA**

1. Improved Transformer-based Implicit Latent GAN with Multi-headed Self-attention for

Unconditional Text Generation

*Fuji Ren, Ziyun Jiao and Xin Kang*

2. Learning a Typhoon Bayesian Network Structure from Natural Language Reports

*Zhangrui Yao, Junhan Chen, Yinghui Pan, Yifeng Zeng, Biyang Ma and Zhong Ming*

*3* What is Information? -----An Interpretation Based on the Theory of Modern Complexity Science

 *Zhikang Wang*

**Session B3: Peceptual Intelligence**

**Chair:** **Changzhe Jiao**

**Conference Room: ICIS2022 RoomB**

1. Combining Spatial-spectral Features for Hyperspectral Image Few-shot Classification

*Yonghao Zhou and Qiong Ran*

2.Tracking Multi-objects With Anchor-free Siamese Network

*Bingyu Hui, Jie Feng, Quanhe Yao, Jing Gu and Licheng Jiao*

3. Feature Learning and Change Feature Classification based on Variational Auto-encoder for SAR

Change Detection

 *Huan Chen, Hongming Zhang and Zhixi Feng*

4. A Simple Structure For Building A Robust Model

 *Xiao Tan, Jingbo Gao and Ruolin Li*

**12:0**0**pm-1:30pm: Lunch Break**

**1:30pm– 3:30pm: Plenary Session 4**

**Chair: Xiangrong Zhang**

**Conference Room: ICIS2022 RoomA**

Helge Ritter: Cognitive Interaction Technology

Huiyu Zhou: Emerging artificial intelligence technologies in healthcare

**3:30pm-4:00pm: Coffee Break**

**4:00pm-6:00pm: Parallel Sessions**

**Session A4: Remote Sensing Images**

**Chair:Weibin Li**

**Conference Room: ICIS2022 RoomA**

1. Deep Siamese Network with Contextual Transformer for Remote Sensing Images Change Detection

*Mengxuan Zhang, Zhao Liu, Jie Feng, Licheng Jiao and Long Liu*

2. GSoP based Siamese Feature Fusion Network for Remote Sensing Image Change Detection

*Puhua Chen and Lu Wang*

3. PolSF: PolSAR image datasets on San Francisco

*Xu Liu, Licheng Jiao, Fang Liu, Dan Zhang and Xu Tang*

4. RSMatch: Semi-supervised Learning with Adaptive Category-related Pseudo Labeling for Remote Sensing Scene Classification

*Weiquan Lin, Jingjing Ma and Xu Tang*

5. Visual Question Answering of Remote Sensing Image Based on Attention Mechanism

*Yangyang Li, Shihuai Zhang, Qiang Wei, Yanqiao Chen and Licheng Jiao*

6. Multi-scale Spatial Aggregation Network for Remote Sensing Image Segmentation

*Xinkai Sun, Jing Gu, Jie Feng, Shuyuan Yang and Licheng Jiao*

7. Deep Complex Convolutional Neural Networks for Remote Sensing Image Classification

*Lingling Li, Yukai Sun, Fuhai Ma, Jingjing Ma, Licheng Jiao and Fang Liu*

**Session B4: Peceptual Intelligence**

**Chair:** **Junpeng Zhang**

**Conference Room: ICIS2022 RoomB**

1. SAR Scene Classification Based on Self-supervised Jigsaw Puzzles

 Zhongle Ren, Yiming Lu, Hanxiao Wang, Yu Zhang and Biao Hou

2.YOLO-Head:An Input Adaptive Neural Network Preprocessor

*Shenxuan Zhou, Biao Hou, Xiaoyu Chen, Heng Jiang and Hao Wang*

3. SR-YOLO: Small Objects Detection Based on Super Resolution

*Biao Hou, Xiaoyu Chen, Shenxuan Zhou, Heng Jiang and Hao Wang*

4. Multi recursive Residual Dense Attention GAN for Perceptual Image Super Resolution

*Linlin Yang, Hongying Liu, Yiming Li, Wenhao Zhou, Yuanyuan Liu, Xiaobiao Di, Lei Wang and*

*Chuanwen Li*

5 Relay-UNet: Reduce Semantic Gap for Glomerular Image Segmentation

 *Zhen Cao, Chuanfeng Ma, Qian Wang and Hongwei Zhang*

6. MobiCFNet: A Lightweight Model for Cattle Face Recognition in Natural Background

 *Yuxuan Zhang, Yaojun Geng, Latuan Qiao, Shuyin Zhang and Chao Xu*

7. Molecular activity prediction based on graph attention network

*Jingyi Ding, Xiaowei Cao, Tiwen Wang and Ruohui Cheng*