

KSEM 2023

The 16th International Conference on
**Knowledge Science
Engineering and Management**

Guangzhou China



August 16-18, 2023







Introduction to South China Normal University



South China Normal University is an institution of higher education with a long history and a rich legacy. Originally known as Guangdong Provincial Xiangqin Normal College, South China Normal University (SCNU) was founded in 1933. In 1996, it became a member of "Project 211", a national project aiming to establish 100 well-acknowledged key universities and colleges in China. 2015 saw the co-construction of SCNU by the Guangdong Provincial Government and Ministry of Education as well as its entry into the Guangdong High-Level University Sponsoring Project. In 2017, SCNU became a member of the National Sponsoring Project for World-Class Disciplines Construction. SCNU now boasts three campuses, namely Shipai Campus, University Town Campus and Nanhai Campus, with a total school area of over two hundred hectares and a total floor space of over one million square meters, housing a collection of over 3.7 million books. The discipline of Physics at SCNU has entered the national project of "World-class Disciplines Development". SCNU also boasts four state-level key disciplines: Educational Technology, Developmental and Educational Psychology, Optoelectronics, and Sports Humanities and Sociology; nine key disciplines as defined under "Project 211", and twenty-three key disciplines for Guangdong Province. In the fourth round of discipline evaluation organized by the Ministry of Education, four disciplines at SCNU, namely Psychology, Physical Education, Education and Marxist theory, ranked among the top 10% Chinese disciplines. Five disciplines, Chemistry, Engineering, Mathematics, Plant & Animal Science and Materials Science ranked top 1% in the World ESI. SCNU now has 87 undergraduate programs, 33 master's programs for the first-grade disciplines, over 200 master's programs, 18 master's programs for professionals, 19 doctoral programs for the first-grade disciplines, over 100 doctoral programs, 1 doctoral program for professionals and 17 postdoctoral research centers.

SCNU began to enroll students from the whole country in the 1950s. There are currently 24,835 full-time undergraduates, 8,212 postgraduates, 909 doctoral candidates, 131 researchers at the postdoctoral research centers and 1,181 overseas students from over 20 countries and areas, forming a complete talent-training system of bachelor, master, doctoral and postdoctoral degrees.

SCNU has persistently adhered to the goal of developing into a teaching-oriented research university. It has a good team of experts and scholars who are famous at home and abroad. There are 2,030 teachers, of which 1,152 hold professor or associate professor titles, 1,227 master and doctoral supervisors, 1,812 holders of master and doctoral degrees. Besides, SCNU boasts a number of strong research institutes and labs, including the National Center for International Research on Green Optoelectronics, the MOE Key Laboratory of Laser Life Science, the Key Laboratory of Theoretical Chemistry of Environment, the MOE Engineering Research Center of Materials and Technology for Electrochemical Energy Storage, the MOE International Laboratory of Optical Information Technology, the MOE Internet Application and Innovation Development Demonstration Base, the MOE Jointly Established Humanities and Social Sciences Key Research Base with the provincial department (Center for Applied Research in Psychology), the Key Research Base of the State General Administration of Sports (Sports and Social Science Research Base).

■ Introduction to South China Normal University

Besides, there are seven Guangdong Provincial Key Laboratories, one Guangdong Provincial Engineering Laboratory, twenty-nine Guangdong Engineering Technology Research Centers, one Guangdong Public Emergency Technology Research Center, one Guangdong International Cooperation Base, and six Guangdong Provincial Key Research Laboratories belonging to various universities, three Guangdong University Engineering Technology Research Centers, seven Guangdong Provincial Humanities and Social Sciences Key Research Bases at different universities, and two Guangdong Provincial key laboratories for Philosophy and Social Sciences attached to universities. Moreover, the university also has one national science base for scientific research and teaching talents, four national experimental teaching demonstration centers, nineteen Guangdong Experimental Teaching Demonstration Centers, three national-level off-campus practice and education bases for university students, and thirty-seven Guangdong provincial-level off-campus practice and education bases for university students. In addition, the Guangdong Teachers' Training Center for Institutions of Higher Learning, Education Research Institute of Guangdong Province, and the Guangdong network library are located at SCNU as well.

SCNU is active in international cultural and academic exchange, with its advantage of being close to Hong Kong, Macao, Taiwan and its strength in teacher education. Links have been established with over 160 higher education institutions and scientific and research organizations at home and abroad. Substantial progress has been made in a wide range of cooperation projects involving talent introduction, quality teaching resources, talent training, academic research, joint education, international conferences, the teaching of Chinese as a foreign language, etc. Among others, the "International Joint Laboratory for Optical Information Technologies" was co-established with Eindhoven University of Technology, the University of Twente and Lund University, Sweden, marking a new stage in the internationalization of science and technology at SCNU. So far SCNU has established three Confucius Institutes in the city of Coquitlam in British Columbia Canada, and at the University of Reunion in France, and the University of Latvia in the Republic of Latvia.

SCNU gives full play to its advantages of being at the forefront of reform and opening up and adjacent to Hong Kong and Macao, and strives to build a first-class teacher cultivation and training base, a research and policy consulting think tank, and a lifelong learning and resource sharing platform for teachers. As the "working machine" of all stages of education in Guangdong, the University has been responsible for the task of training and continuing education for the maximum number of teachers in colleges and universities nationwide. It is also known as the "Demonstration Base for Continuing Education of Colleges and Universities" by the Ministry of Education, and the distance teacher training organization of the "National Training Program" of the Ministry of Education. The Execution Office of the Overseas Training Program of the National Training Program of the Ministry of Education, the Training and Study Base for University Counselors of the Ministry of Education, the Teacher Social Practice Training Base of the National College Ideological and Political Theory Course of the Ministry of Education, Guangdong Provincial Higher Education Teacher Training Center and the Guangdong Primary and Secondary School Teacher Development Center have been successively established at SCNU, providing educational services across the country. Besides, SCNU took the lead in launching two-way exchange activities with Sino-British and Sino-American principals and headmasters, initially forming a multi-level and all-round training system for teachers. With its disciplinary advantages in education and psychology, SCNU works to strengthen education and research, create a high-end southern education think tank, and establish a number of educational development institutes (centers) in the Pearl River Delta and the North and West of Guangdong. Moreover, the University has been serving the comprehensive reform of education in Guangdong Province, and signed comprehensive strategic cooperation agreements with a number of local governments, with its quality affiliated school resources radiating out to different places. It's worth noting that SCNU has a sound historical foundation and first-mover advantage in serving educational development in Hong Kong, Macao and Taiwan. As the first mainland university to promote cooperative education in Hong Kong and Macao, SCNU has been regarded as one of the three major forces of Macao teachers.

During the past 80 years, the university has changed its name and location several times, yet its good tradition has been kept well and passed down from generation to generation. Imbued with Lingnan's pioneering and pragmatic spirits, SCNU has developed a tradition of elegant simplicity and fostered a strong learning environment. Under the guidance of CPC and following a socialist educational strategy, the University strives to serve Guangdong, influence Hong Kong and Macao and open to the outside world. In its efforts to cultivate outstanding teachers, promote regional education development, lead teacher education in Southern China and provide talent support, intellectual support and cultural services for regional and national economic and social development, SCNU endeavors to establish itself as a comprehensive normal university with domestic fame and world popularity.



Introduction to the School of Computer Science, South China Normal University



South China Normal University (SCNU) recruited the first undergraduate students majoring in computer science (Department of Mathematics) in 1983, established the Department of Computer Science in January 1986, set up the Guangdong Provincial Demonstration School of Software (co-located with the Department of Computer Science) in 2004, and set up the School of Computer Science in January 2005. In June 2021, the School of Computer Science extended its operation in Nanhai Campus.

The school has a complete talent cultivation system from undergraduate, master's degree to doctoral

degree (postdoctoral). It has a postdoctoral research station of software engineering, a doctoral program of the first discipline of software engineering, a master's program of the first discipline of computer science and technology and a master's degree authorization program of engineering for professional degree of electronics and information (five fields, including computer technology, software engineering, artificial intelligence, big data technology and engineering, network and information security, etc.); currently enrolling in the computer science and technology (including teacher-training and non-teacher-training), network engineering, artificial intelligence and other undergraduate programs. Among them, Computer Science and Technology is a national first-class undergraduate major construction point, the first batch of IT brand-name majors and provincial characteristic majors in Guangdong Province; Network Engineering is a characteristic major in Guangdong Province; and Software Engineering is a key discipline for "Pearl River Scholars" in Guangdong higher education institutions and Guangzhou Municipal Bureau of Education.

The school has Guangdong Service Computing Engineering Technology Research and Development Center, Guangdong Mobile Internet Application and Safety Engineering Technology Research Center, Guangdong Intelligent Science Engineering Technology Research Center, Guangdong Data Science Engineering Technology Research Center (co-built with the School of Mathematics), Key Laboratory of Brain Cognition and Educational Sciences of the Ministry of Education (co-built with the School of Psychology), Virtual Teaching and Research Section of Data Science Curriculum Group of the Ministry of Education, Guangzhou Key Laboratory of Cloud Computing Security and Evaluation, Guangzhou Key Laboratory of Big data Intelligent Education, Guangdong Computer Experiment Teaching Demonstration Center, Guangdong Postgraduate Joint Training Base, Guangdong Postdoctoral Innovation Base and a number of off-campus joint research and teaching innovation bases, as well as national quality video open courses, Guangdong quality courses, Guangdong graduate demonstration courses and other teaching course platforms. It provides superior conditions for computer and software talent training and discipline research.

The college currently has nearly a hundred faculty members, 15 doctoral supervisors, and more than 50 master's supervisors. There are over 1200 undergraduate students and over 300 doctoral and master's students on campus. Among the teachers, there are winners of national and provincial major talent projects, Baosteel Education Award, Ding Ying Science and Technology Award, Guangdong Province "May Fourth Youth Medal", CCF Tencent Rhinoceros Fund, etc. Multiple teachers hold important academic positions in international and domestic academic organizations (academic conferences, journals, professional societies, etc.).

In the past 40 years, the school has achieved remarkable results in talent cultivation, academic research, and technological services. In terms of talent training, thousands of computer professionals have been trained for the society, including outstanding representatives such as National Outstanding Young Scholars, "Person of the Year of Chinese College Students", gold medal winners of the "Challenge Cup" for national college students, and gold medal winners of the ACM International Collegiate Programming Contest in Asia; The student collective has been awarded titles such as the "National May Fourth Red Flag Youth League Branch", the "Three Type" Party Branch of Guangdong Province's universities, and the National Party Building Model Party Branch. In terms of scientific teaching research, the school has undertaken a number of national and provincial level major projects, and multiple papers have been selected for ESI high citation papers. The school has achieved multiple awards, including the National Science and Technology Progress Third Prize, the National Teaching Achievement Second Prize, the National Excellent Textbook Special Prize, the Guangdong Science and Technology First and Second Prizes, the Guangdong Teaching Achievement First and Second Prizes, and the South Guangdong Science and Technology Innovation Excellent Thesis First Prize. A number of academic achievements have been widely applied. The college has also established long-term cooperation with world-renowned universities in countries such as the United States, the United Kingdom, Australia, and the Hong Kong and Macao regions, forming a normal mechanism for international cooperation in academic research and talent cultivation.

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Preface

The International Conference on Knowledge Science, Engineering and Management, also known as KSEM, has become one of the most important international academic platforms in the field of knowledge science and engineering.

Since its inaugural conference back in 2006, KSEM has accumulated great success under the immense efforts from each year's organizing committee and beyond. Previous years' events were held in Guilin, China (KSEM 2006); Melbourne, Australia (KSEM 2007); Vienna, Austria (KSEM 2009); Belfast, UK (KSEM 2010); Irvine, USA (KSEM 2011), Dalian, China (KSEM 2013); Sibiu, Romania (KSEM 2014); Chongqing, China (KSEM 2015); Passau, Germany (KSEM 2016); Melbourne, Australia (KSEM 2017); Changchun, China (KSEM 2018); Athens, Greece (KSEM 2019). Even during the COVID pandemic, KSEM was continued and held in Hangzhou, China (KSEM 2020); Tokyo, Japan (KSEM 2021) and Singapore (KSEM 2022), respectively. This year marked KSEM's 16th event and was held in the window city of south China, Guangzhou, from August 16th to 18th.

The objective of KSEM is to create a forum that gathers researchers and practitioners from academia, industry, and government around the globe to present advancements in theories and state-of-the-art technologies in the field of knowledge science, engineering, and management. Attendees were encouraged to present prototypes and deployed knowledge-based systems, discuss and debate practical challenges as well as opportunities for the research community. With its interdisciplinary nature, KSEM 2023 focused on four broad areas: Knowledge Science with Learning and AI (KSLA), Knowledge Engineering Research and Applications (KERA), Knowledge Management Systems (KMS), and Emerging Technologies for Knowledge Science, Engineering and Management (ETKS).

In this year's conference, we received 395 submissions. Single-blind review was adopted for the conference review process. Each submission has been peer reviewed by 2 to 4 reviewers from the program committee members and external reviewers. Among them, 114 regular papers (28.8% acceptance rate) and 30 short papers were selected, giving a total of 144 papers. We have separated the proceedings into four volumes: LNCS 14117, 14118, 14119, and 14120. The collection of papers represents a wide range of research activities, covering knowledge representation and reasoning, knowledge extraction, knowledge integration, data mining and knowledge discovery, and beyond.

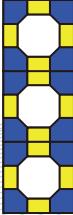
In addition to the regular sessions, this year's event featured the following keynote speakers:

- Prof. Witold Pedrycz, University of Alberta, Canada, with the presentation titled Credibility of Machine Learning Through Information Granularity;
- Prof. Zhi-Hua Zhou, Nanjing University, China, with the presentation titled A new paradigm to leverage formalized knowledge and machine learning;
- Prof. Geoff Webb, Monash University, Australia, with the presentation titled Recent Advances in Assessing Time Series Similarity Through Dynamic Time Warping;
- Prof. Jie Tang, Tsinghua University, China, with the presentation titled ChatGLM: Run your own "ChatGPT" on a laptop;
- Prof. Gang Li, School of Information Technology, Deakin University, Australia, with the presentation titled Topological Data Analysis: Discriminative Representations for Persistence Diagram.

We would like to express our sincere gratitude to the many contributors who have been steadfast supports to make KSEM 2023 a great success. First of all, we would like to thank all the staff of KSEM 2023 Organizing Committee, the School of Computer Science at South China Normal University, Sun Yat-sen University, and our publisher Springer, without the crucial support of which the conference would not be possible. Secondly, we would like to thank members from our Steering Committee (Honorary General Chairs), Prof. Ruqian Lu from Chinese Academy of Sciences, China, and Prof. Dimitris Karagiannis from University of Vienna, Austria for their invaluable guidance throughout the event; the General Co-Chairs, Prof. Zhi Jin from Peking University, Prof. Christos Douligeris from University of Piraeus, and Prof. Daniel Neagu from University of Bradford. They have been involved in the whole process of the organization efforts, and provided various critical resources, including but are not limited to connections to external reviewers and professional advice. Last but not least, we would like to thank the authors who have submitted their papers to this year's conference, the Programme Committee and external reviewers without whom the daunting tasks of paper reviews would not be accomplished in time.

We hope that this year's conference has provided you with a valuable opportunity to share ideas with other researchers and practitioners from institutions around the world.

The Local Organizing Committee of KSEM 2023



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Yueqing Guo	South China Normal University, China
Haiyan Guo	South China Normal University, China
Zonggan Chen	South China Normal University, China
Caixia Zhou	South China Normal University, China



KSEM 2023 Program

Aug 15

Time	Activity
All Day	Registration (Hotel Lobby)
18:00-20:00	Buffet Dinner (CROWNE BALLROOM C&D 1F)

Aug 16

Time	Activity
9:00-9:30	Opening ceremony (CROWNE BALLROOM A&B 1F) 1 Introduction to the conference organizers and distinguished guests. 2 Speech from the Honorary General Chair, CAS Academician Prof. Ruqian Lu. 3 Welcome speech by the President of South China Normal University. 4 Speech from the General Co-Chair. 5 Speech from the PC Co-Chair. 6 Group photo session.
9:30-10:30	Keynote (CROWNE BALLROOM A&B 1F): Credibility of Machine Learning Through Information Granularity Witold Pedrycz , Department of Electrical & Computer Engineering, University of Alberta, Edmonton, Canada
10:30-10:45	Tea Break
10:45-11:45	Keynote (CROWNE BALLROOM A&B 1F): A New Paradigm to Leverage Formalized Knowledge and Machine Learning Zhi-Hua Zhou , Department of Computer Science & Technology, School of Artificial Intelligence, Nanjing University, China
11:45-14:30	Buffet Lunch Break (CROWNE BALLROOM C&D 1F)
14:30-16:00	Session 1A: Graph Representation Learning (Conference Room OPAL&RUBY 2F) Session 1B: Entity Alignment Algorithms and Applications (Conference Room SAPPHIRE&TOPAZ 2F) Session 1C: Collaborative Filtering Approaches for Recommendation Systems (Conference Room DIAMOND&EMERALD 1F)
16:00-16:15	Tea Break
16:15-17:45	Session 2A: Misc Learning Systems/ Misc Knowledge Learning Technologies (Conference Room OPAL&RUBY 2F) Session 2B: Misc Learning Methods/ Misc Knowledge Learning Technologies (Conference Room SAPPHIRE&TOPAZ 2F) Steering Committee Meeting (Conference Room DIAMOND&EMERALD 1F)
18:30-20:30	Banquet (CROWNE BALLROOM A&B 1F)

Aug 17

Time	Activity		
9:00-10:30	Session 3A: Applications of LLM (Conference Room OPAL&RUBY 2F)	Session 3B: Traffic and Spatial Applications (Conference Room SAPPHIRE&TOPAZ 2F)	Session 3C: Recommendation Systems (Conference Room DIAMOND&EMERALD 1F)
10:30-10:45	Tea Break		
10:45-12:15	Session 4A: Feature Learning Methods (Conference Room OPAL&RUBY 2F)	Session 4B: Visual-based Applications (Conference Room SAPPHIRE&TOPAZ 2F)	Session 4C: Text-based Applications (Conference Room DIAMOND&EMERALD 1F)
12:15-13:30	Buffet Lunch Break (CROWNE BALLROOM C&D 1F)		
13:30-14:30	Keynote (CROWNE BALLROOM A&B 1F): ChatGLM: Run Your Own "ChatGPT" on a Laptop Jie Tang , Department of Computer Science, Tsinghua University, China		
14:30-15:30	Keynote (CROWNE BALLROOM A&B 1F): Topological Data Analysis: Discriminative Representations for Persistence Diagram Gang Li , School of Information Technology, Deakin University, Australia		
15:30-16:30	Keynote (CROWNE BALLROOM A&B 1F): Recent Advances in Assessing Time Series Similarity Through Dynamic Time Warping Geoff Webb , Department of Data Science & Artificial Intelligence, Monash Data Futures Institute, Monash University, Australia		
16:30-16:45	Tea Break		
16:45-17:45	Session 5A: Graph-based Deep Learning Methods (Conference Room OPAL&RUBY 2F)	Session 5B: Graph-based Deep Learning Methods (Conference Room SAPPHIRE&TOPAZ 2F)	
18:00-20:00	Buffet Dinner (CROWNE BALLROOM C&D 1F)		

Aug 18

Time	Activity		
9:00-10:30	Session 6A: Deep Learning Approaches (Conference Room OPAL&RUBY 2F)	Session 6B: Applications of Knowledge Mining (Conference Room SAPPHIRE&TOPAZ 2F)	Session 6C: Novel Approaches in Language Related Domains (Conference Room DIAMOND&EMERALD 1F)
10:30-10:45	Tea Break		
10:45-12:15	Session 7A: Domain Adaptation and Generalization Methods (Conference Room OPAL&RUBY 2F)	Session 7B: Deep Learning-based Applications (Conference Room SAPPHIRE&TOPAZ 2F)	Session 7C: Misc Learning Systems (Conference Room DIAMOND&EMERALD 1F)
12:15-14:30	Buffet Lunch Break (CROWNE BALLROOM C&D 1F)		
14:30-16:00	Session 8A: Knowledge Graph Learning (Conference Room OPAL&RUBY 2F)	Session 8B: Knowledge Learning via Reinforcement Learning (Conference Room SAPPHIRE&TOPAZ 2F)	Session 8C: Deep Learning Approaches for Knowledge Systems (Conference Room DIAMOND&EMERALD 1F)
16:00-16:15	Tea Break		
16:15-17:45	Session 9A: Hybrid Learning Approaches (Conference Room OPAL&RUBY 2F)	Session 9B: Misc Knowledge Learning Applications (Conference Room SAPPHIRE&TOPAZ 2F)	Session 9C: Misc Knowledge Learning Technologies (Conference Room DIAMOND&EMERALD 1F)
18:00-20:00	Buffet Dinner (CROWNE BALLROOM C&D 1F)		



Keynote Abstracts

Keynote: Credibility of Machine Learning Through Information Granularity

9:30-10:30, Aug 16

Witold Pedrycz, Department of Electrical & Computer Engineering, University of Alberta, Edmonton, Canada



Abstract:

Over the recent years, we have been witnessing numerous and far-reaching developments and applications of Machine Learning (ML). Efficient and systematic design of their architectures is important. Equally important are comprehensive evaluation mechanisms aimed at the assessment of the quality of the obtained results. The credibility of ML models is also of concern to any application, especially the one exhibiting a high level of criticality commonly encountered in autonomous systems and critical processes of decision-making. With this regard, there are a number of burning questions: how to quantify the quality of a result produced by the ML model? What is its credibility? How to equip the models with some self-awareness mechanism so careful guidance for additional supportive experimental evidence could be triggered?

Proceeding with a conceptual and algorithmic pursuits, we advocate that these problems could be formalized in the settings of Granular Computing (GrC). We show that any numeric result be augmented by the associated information granules being viewed as an essential vehicle to quantify credibility. A number of key formalisms explored in GrC are explored, namely those involving probabilistic, interval, and fuzzy information granules. Depending on the formal settings, confidence levels and confidence intervals or coverage and specificity criteria are discussed in depth and we show their role as descriptors of credibility measures.

The general proposals of granular embedding and granular Gaussian Process models are discussed along with their ensemble architectures. In the sequel, several representative and direct applications arising in the realm of transfer learning, knowledge distillation, and federated learning are discussed.

Keynote: A New Paradigm to Leverage Formalized Knowledge and Machine Learning

10:45-11:45, Aug 16

Zhi-Hua Zhou, Department of Computer Science & Technology, School of Artificial Intelligence, Nanjing University, China



Abstract:

To develop a unified framework which accommodates and enables machine learning and logical knowledge reasoning to work together effectively is a well-known holy grail problem in artificial intelligence. It is often claimed that advanced intelligent technologies can emerge when machine learning and logical knowledge reasoning can be seamlessly integrated as human beings generally perform problem-solving based on the leverage of perception and reasoning, where perception corresponds to a data-driven process that can be realized by machine learning whereas reasoning corresponds to a knowledge-driven process that can be realized by formalized reasoning. This talk will present a recent study in this line.

Keynote: ChatGLM: Run Your Own “ChatGPT” on a Laptop

13:30-14:30, Aug 17

Jie Tang, Department of Computer Science, Tsinghua University, China



Abstract:

Large language models have substantially advanced the state of the art in various AI tasks, such as natural language understanding and text generation, and image processing, multimodal modeling. In this talk, I am going to talk about how we build GLM-130B, a bilingual (English and Chinese) pre-trained language model with 130 billion parameters. It is an attempt to open-source a 100B-scale model at least as good as GPT-3 and unveil how models of such a scale can be successfully pre-trained. Based on GLM-130B, we have developed ChatGLM, an alternative to ChatGPT. A small version, ChatGLM-6B, is opened with weights and codes. It can be deployed with one RTX 2080 Ti (11G) GPU, which makes it possible for everyone to deploy a ChatGPT! It has attracted over 2,000,000 downloads on Hugging Face in one month, and won the trending #1 model for two weeks.

Keynote: Topological Data Analysis: Discriminative Representations for Persistence Diagram

14:30-15:30, Aug 17

Gang Li, School of Information Technology, Deakin University, Australia



Abstract:

Topological data analysis (TDA) extracts topological features to quantify the shape of data. TDA has found applications in many fields, including computer vision. In TDA, persistence diagrams (PDs) are topological descriptors of data. However, PDs are not vector so they cannot be directly used in machine learning methods. Recent efforts have transformed PDs into vectors to enable machine learning tasks. However, existing methods highly depend on pre-defined polynomials to map PDs to vector representations. This presentation introduces two recent advances in PD representation: polynomial representations and Hilbert space embeddings. Our work seeks to open new research directions and applications of TDA in chemical/biological science, and materials engineering.

Keynote: Recent Advances in Assessing Time Series Similarity Through Dynamic Time Warping

15:30-16:30, Aug 17

Geoff Webb, Department of Data Science & Artificial Intelligence, Monash Data Futures Institute, Monash University, Australia



Abstract:

Time series are a ubiquitous data type that capture information as it evolves over time. Dynamic Time Warping is the classic technique for quantifying similarity between time series. This talk outlines our impactful program of research that has transformed the state of the art in practical application of Dynamic Time Warping to big data tasks. These include fast and effective lower bounds, fast dynamic programming methods for calculating Dynamic Time Warping, and intuitive and effective variants of Dynamic Time Warping that moderate its sometimes-excessive flexibility.



Presentation Arrangements

Session 1A: Graph Representation Learning (Conference Room OPAL&RUBY 2F)

14:30-16:00, Aug 16

Hyperplane Knowledge Graph Embedding with Path Neighborhoods and Mapping Properties

Yadan Han, Guangquan Lu, Jiecheng Li, Fuqing Ling, Wanxin Chen and Liang Zhang

A Sparse Matrix Optimization Method for Graph Neural Networks Training

Tiechui Yao, Jue Wang, Junyu Gu, Yumeng Shi, Fang Liu, Xiaoguang Wang, Yangang Wang and Xuebin Chi

Dual-dimensional Refinement of Knowledge Graph Embedding Representation

Jie Cui, Fei Pu and Bailin Yang

Dynamic and Static Feature-aware Microservices Decomposition via Graph Neural Networks

Long Chen, Mingjian Guang, Junli Wang and Chungang Yan

Black-box Adversarial Attack on Graph Neural Networks Based on Node Domain Knowledge

Qin Sun, Zheng Yang, Zhiming Liu and Quan Zou

Community-enhanced Contrastive Siamese networks for Graph Representation Learning

Yafang Li, Wenbo Wang, Guixiang Ma and Baokai Zu

Session 1B: Entity Alignment Algorithms and Applications (Conference Room SAPPHIRE&TOPAZ 2F)

14:30-16:00, Aug 16

SNAFA-Net: Squared Normalization Attention and Feature Alignment for Visible-Infrared Person Re-identification

Jiahao Wu, Guoqiang Xiao and Qiang Chen

Cascade Sampling via Dual Uncertainty for Active Entity Alignment

Jiye Xie, Jiaxin Li, Jiawei Tan and Hongxing Wang

Enhanced Entity Interaction Modeling for Multi-modal Entity Alignment

Jinxu Li, Qian Zhou, Wei Chen and Lei Zhao

A Graph Partitioning Algorithm Based on Graph Structure and Label Propagation for Citation Network Prediction

Weiting Xi, Hui He, Junyu Gu, Jue Wang, Tiechui Yao and Zhiqiang Liang

Semi-supervised entity alignment via noisy student-based self training

Yihe Liu and Yuanfei Dai

Joint extraction of nested entities and relations based on multi-task learning

Jing Wan, Chunyu Qin and Jing Yang

Session 1C: Collaborative Filtering Approaches for Recommendation Systems (Conference Room DIAMOND&EMERALD 1F)

14:30-16:00, Aug 16

Debiased Contrastive Loss for Collaborative Filtering

Zhuang Liu, Yunpu Ma, Haoxuan Li, Marcel Hildebrandt, Yuanxin Ouyang and Zhang Xiong

Degree-aware embedding and Interactive feature fusion-based Graph Convolution Collaborative Filtering

Chao Ma, Jiwei Qin and Aohua Gao

Heavy Weighting for Potential Important Clauses

Hanyi Yu, Menghua Jiang and Yin Chen

Temporal Repetition Counting Based on Multi-Stride Collaboration

Guoxi Gan and Jia Su

Fusion High-Order information with Nonnegative Matrix Factorization Based Community Infomax for Community Detection

Ying Li, Guohua Chen, Nini Zhang and Yong Tang

User Feedback-based Counterfactual Data Augmentation for Sequential Recommendation

Haiyang Wang, Yan Chu, Hui Ning, Zhengkui Wang and Wen Shan

■ Presentation Arrangements

Session 2A: Misc Learning Systems/Misc Knowledge Learning Technologies (Conference Room OPAL&RUBY 2F)

16:15-17:45, Aug 16

Dialogue State Tracking with a Dialogue-aware Slot-Level Schema Graph Approach

Jie Yang, Hui Song, Bo Xu and Haoran Zhou

Knowledge-Aware Two-Stream Decoding for Outline-Conditioned Chinese Story Generation

Huahai Lin, Yong Wen, Ping Jiang, Wu Wen and Xianye Liang

SPOAHA: Spark program optimizer based on Artificial Hummingbird Algorithm

Miao Wang, Jiteng Zhen, Yupeng Ma, Xu Huang and Hong Zhang

The Minimal Negated Model Semantics of Assumable Logic Programs

Shutao Zhang and Zhizheng Zhang

A Quantitative Spectra Analysis Framework Combining Mixup and Band Attention for Predicting Soluble Solid Content of Blueberries

Zhaokui Li, Jinen Zhang, Wei Li, Fei Li, Ke Bi and Hongli Li

Knowledge Leadership, AI Technology Adoption and Big Data Application Ability

Siqi Zhu, Ping He, Jianming Zhou and Peng Zhang

Session 2B: Misc Learning Methods/Misc Knowledge Learning Technologies (Conference Room SAPPHIRE&TOPAZ 2F)

16:15-17:45, Aug 16

Enhancing Adversarial Robustness via Anomaly-aware Adversarial Training

Keke Tang, Tianrui Lou, Xu He, Yawen Shi, Peican Zhu and Zhaoquan Gu

An Improved Cross-Validated Adversarial Validation Method

Wen Zhang, Zhengjiang Liu, Yan Xue, Ruibo Wang, Xuefei Cao and Jihong Li

An Evaluation Metric for Prediction Stability with Imprecise Data

Ye Li, Mei Wang and Jianwen Su

Reducing The Teacher-Student Gap Via Elastic Student

Haorong Li, Zihao Chen, Jingtao Zhou and Shuangyin Li

An Enhanced Distributed Algorithm for Area Skyline Computation based on Apache Spark

Chen Li, Yang Cao, Ye Zhu, Jinli Zhang, Annisa Annisa, Debo Cheng, Huidong Tang, Shuai Jiang, Kenta Maruyama and Yasuhiko Morimoto

Unveiling Cybersecurity Threats from Online Chat Groups: A Triple Extraction Approach

Zhen Yang, Cheng Huang and Jiayong Liu

Session 3A: Applications of LLM (Conference Room OPAL&RUBY 2F)

9:00-10:30, Aug 17

Federated Prompting and Chain-of-Thought Reasoning for Improving LLMs Answering

Xiangyang Liu, Tianqi Pang and Chenyou Fan

Advancing Domain Adaptation of BERT by Learning Domain Term Semantics

Jian Yang, Hu Xinyu, Weichun Huang, Hao Yuan, Gang Xiao and Shen Yulong

Modal interaction-enhanced Prompt Learning by transformer decoder for Vision-Language Models

Mingyue Liu, Honggang Zhao, Longfei Ma, Xiang Li, Yucheng Ji and Mingyong Li

Recent Progress on Text Summarisation Based on BERT and GPT

Binxia Yang, Xudong Luo, Kaili Sun and Michael Y Luo

A Legal Multi-Choice Question Answering Model Based on BERT and Attention

Guibin Chen, Xudong Luo and Junlin Zhu

Multi-Level Contrastive Learning for Commonsense Question Answering

Quntian Fang, Zhen Huang, Ziwen Zhang, Minghao Hu, Biao Hu, Ankun Wang and Dongsheng Li

Session 3B: Traffic and Spatial Applications (Conference Room SAPPHIRE&TOPAZ 2F)

9:00-10:30, Aug 17

An Efficient One-Shot Network and Robust Data Associations in Multi-Pedestrian Tracking

Fuxiao He and Guoqiang Xiao

Sampling Spatial-Temporal Attention Network for Traffic Forecasting

Mao Chen, Yi Xu, Liangzhe Han and Leilei Sun

ST-MAN: Spatio-Temporal Multimodal Attention Network for Traffic Prediction

Ruozhou He, Liting Li, Bei Hua, Jianjun Tong and Chang Tan

HBay: Predicting Human Mobility via Hyperspherical Bayesian Learning

Li Huang, Kai Liu, Chaoran Liu, Qiang Gao, Xiao Zhou and Guisong Liu

Spatial-Temporal Diffusion Probabilistic Learning for Crime Prediction

Qiang Gao, Hongzhu Fu, Yutao Wei, Li Huang, Xingmin Liu and Guisong Liu

WGNN: A Novel Wavelet Graph Neural Network for Metro Ridership Prediction

Junjie Tang, Junhao Zhang, Juncheng Jin and Zehui Qu

Session 3C: Recommendation Systems (Conference Room DIAMOND&EMERALD 1F)

9:00-10:30, Aug 17

Explainable Multi-type Item Recommendation System based on Knowledge Graph

Chao Chang, Junming Zhou, Weisheng Li, Zhengyang Wu, Jing Gao and Yong Tang

Hypergraph Enhanced Contrastive Learning for News Recommendation

Mankun Zhao, Zhao Liu, Mei Yu, Wenbin Zhang, Yue Zhao, Ming Yang and Jian Yu

Reinforcement Learning-Based Recommendation with User Reviews on Knowledge Graphs

Siyuan Zhang, Yuanxin Ouyang, Zhuang Liu, Weijie He, Wenge Rong and Zhang Xiong

Multi-level and Multi-interest User Interest Modeling for News Recommendation

Yun Hou, Yuanxin Ouyang, Zhuang Liu, Fujing Han, Wenge Rong and Zhang Xiong

CoMeta: Enhancing Meta Embeddings with Collaborative Information in Cold-start Problem of Recommendation

Haonan Hu, Dazhong Rong, Jianhai Chen, Qinming He and Zhenguang Liu

Candidate-aware Attention Enhanced Graph Neural Network for News Recommendation

Li Xiaohong, Li Ruihong, Peng Qixuan and Ma Huifang

■ Presentation Arrangements

Session 4A: Feature Learning Methods (Conference Room OPAL&RUBY 2F)

10:45-12:15, Aug 17

Joint Feature Selection and Classifier Parameter Optimization: A Bio-inspired Approach

Zeqian Wei, Hui Kang, Hongjuan Li, Geng Sun, Jiahui Li, Xinyu Bao and Bo Zhu

Multi-Sampling Item Response Ranking Neural Cognitive Diagnosis with Bilinear Feature Interaction

Jiamei Feng, Mengchi Liu, Tingkun Nie and Caixia Zhou

Contextual Information Augmented Few-Shot Relation Extraction

Tian Wang, Zhiguang Wang, Rongliang Wang, Dawei Li and Qiang Lu

An Enhanced Fitness-distance Balance Slime Mould Algorithm and Its Application in Feature Selection

Haijia Bao, Yu Du and Ya Li

Low Redundancy Learning for Unsupervised Multi-view Feature Selection

Hong Jia and Jian Huang

Subspace Clustering with Feature Grouping for Categorical Data

Hong Jia and Menghan Dong

Session 4B: Visual-based Applications (Conference Room SAPPHIRE&TOPAZ 2F)

10:45-12:15, Aug 17

SIE-YOLOv5: Improved YOLOv5 for Small Object Detection in Drone-Captured-Scenarios

Zonghui Wen, Jia Su and Yongxiang Zhang

Tennis action recognition based on multi-branch mixed attention

Xianwei Zhou, Weitao Chen, Zhenfeng Li, Yuan Li, Jiale Lei and Songsen Yu

Template Shift and Background Suppression for Visual Object Tracking

Yiwei Wu, Ke Qi, Wenbin Chen, Jingdong Zhang and Yutao Qi

View Distribution Alignment with Progressive Adversarial Learning for UAV Visual Geo-Localization

Cuiwei Liu, Jiahao Liu, Huajun Qiu, Zhaokui Li and Xiangbin Shi

GMiRec: A Multi-image Visual Recommendation Model based on a Gated Neural Network

Caihong Mu, Xin Tang, Jiashen Luo and Yi Liu

A Grasping System with Structured Light 3D Machine Vision Guided Strategy Optimization

Jinhui Lin, Lingxi Peng, Xuebing Luo, Ziyan Ke, Zhiwen Yu and Ke Ding

Session 4C: Text-based Applications (Conference Room DIAMOND&EMERALD 1F)

10:45-12:15, Aug 17

A 2D Entity Pair Tagging Scheme for Relation Triplet Extraction

Xu Liu, Ruiqi Cai and Yonggang Zhang

MA-TGNN: Multiple Aggregators Graph-Based Model for Text Classification

Chengcheng Huang, Shiqun Yin, Lei Li and Yaling Zhang

Multi-Display Graph Attention Network for Text Classification

Xinyue Bao, Zili Zhou, Shiliang Gao, Zhaoan Dong and Yuanyuan Lin

ParaSum: Contrastive Paraphrasing for Low-resource Extractive Text Summarization

Moming Tang, Chengyu Wang, Jianing Wang, Cen Chen, Ming Gao and Weinling Qian

Multi-Path based Self-Adaptive Cross-Lingual Summarization

Zhongtian Bao, Jun Wang and Zhenglu Yang

A Pairing Enhancement Approach for Aspect Sentiment Triplet Extraction

Fan Yang, Mian Zhang, Gongzhen Hu and Xiabing Zhou

Session 5A: Graph-based Deep Learning Methods (Conference Room OPAL&RUBY 2F)

16:45-17:45, Aug 17

Graph Neural Network with Neighborhood Reconnection

Mengying Guo, Zhenyu Sun, Yuyi Wang and Xingwu Liu

Twin Graph Attention Network with Evolution Pattern Learner for Few-Shot Temporal Knowledge Graph Completion

Yi Liang, Shuai Zhao, Bo Cheng and Hao Yang

Learning Graph Neural Networks on Feature-Missing Graphs

Jun Hu, Jinyan Wang, Quanmin Wei, Kai Du and Xianxian Li

Cluster Robust Inference for embedding-based Knowledge Graph Completion

Simon Schramm, Ulrich Niklas and Ute Schmid

Session 5B: Graph-based Deep Learning Methods (Conference Room SAPPHIRE&TOPAZ 2F)

16:45-17:45, Aug 17

TCMCoRep: Traditional Chinese Medicine data mining with Contrastive Graph Representation Learning

Zecheng Yin, Jinyuan Luo, Yanchun Zhang, Yuejun Tan

Local-Global Fusion Augmented Graph Contrastive Learning Based on Generative Models

Di Jin, Zhiqiang Wang, Cuiying Huo, Zhizhi Yu, Dongxiao He and Yuxiao Huang

Multivariate Long-Term Traffic Forecasting with Graph Convolutional Network and Historical Attention Mechanism

Zhaohuan Wang, Yi Xu, Liangzhe Han, Tongyu Zhu and Leilei Sun

Graph Contrastive Learning Method with Sample Disparity Constraint and Feature Structure Graph for Node Classification

Gangbin Chen, Junwei Cheng, Wanying Liang, Chaobo He and Yong Tang

■ Presentation Arrangements

Session 6A: Deep Learning Approaches (Conference Room OPAL&RUBY 2F)

9:00-10:30, Aug 18

Boosting LightWeight Depth Estimation Via Knowledge Distillation

Junjie Hu, Chenyou Fan, Hualie Jiang, Xiyue Guo, Yuan Gao, Xiangyong Lu and Tin Lun Lam

Multitask-based Cluster Transmission for Few-Shot Text Classification

Kaifang Dong, Fuyong Xu, Baoxing Jiang, Hongye Li and Peiyu Liu

Dynamic Feed-Forward LSTM

Chengkai Piao, Yuchen Wang and Jinmao Wei

Role and Relationship-Aware Representation Learning for Complex Coupled Dynamic Heterogeneous Networks

Jieya Peng, Jiale Xu and Ya Li

Distant Supervision Relation Extraction with Improved PCNN and Multi-level Attention

Yang Zou, Qifei Wang, Zhen Wang, Jian Zhou and Xiaoqin Zeng

EACCNet: Enhanced Auto-Cross Correlation Network for Few-Shot Classification

Jiuqiang Li

Session 6B: Applications of Knowledge Mining (Conference Room SAPPHIRE&TOPAZ 2F)

9:00-10:30, Aug 18

Implicit Offensive Speech Detection Based on Multi-feature Fusion

Tengda Guo, Lianxin Lin, Hang Liu, Chengping Zheng, Zhijian Tu and Haizhou Wang

A comparative study of chatbot response generation: traditional approaches versus large language models

Michael McTear, Sheen Varghese Marokkie and Yixin Bi

Investigating the Impact of Product Contours on User Perception of Product Attributes

Zuyao Zhang and Huizhen Ding

Hybrid Heterogeneous Graph Neural Networks for Fund Performance Prediction

Siyuan Hao, Le Dai, Le Zhang, Shengming Zhang, Chao Wang, Chuan Qin and Hui Xiong

A Cognitive Knowledge Enriched Joint Framework for Social Emotion and Cause Mining

Xinglin Xiao, Yuan Tian, Yin Luo and Wenji Mao

TKSP: Long-term Stance Prediction for Social Media Users by Fusing Time Series Features and Event Dynamic Evolution Knowledge

Zijian Zhou, Shuoyu Hu, Kai Yang and Haizhou Wang

Session 6C: Novel Approaches in Language Related Domains (Conference Room DIAMOND&EMERALD 1F)

9:00-10:30, Aug 18

Multi-hop Reading Comprehension Learning Method Based on Answer Contrastive Learning

Hao You, Heyan Huang, Yue Hu and Yongxiu Xu

Importance-based Neuron Selective Distillation for Interference Mitigation in Multilingual Neural Machine Translation

Jiarui Zhang, Heyan Huang, Yue Hu, Ping Guo and Yuqiang Xie

Are GPT Embeddings Useful for Ads and Recommendation?

Wenjun Peng, Derong Xu, Tong Xu, Jianjin Zhang and Enhong Chen

Evolutionary Verbalizer Search for Prompt-based Few Shot Text Classification

Tongtao Ling, Lei Chen, Yutao Lai and Hai-Lin Liu

Contextualized Hybrid Prompt-Tuning for Generation-Based Event Extraction

Yuzhen Zhong, Tong Xu and Pengfei Luo

RFLSem: A lightweight model for textual sentiment analysis

Bo Yang, Jiayi Dang, Huai Liu and Zhi Jin

Session 7A: Domain Adaptation and Generalization Methods (Conference Room OPAL&RUBY 2F)

10:45-12:15, Aug 18

Prototype-Augmented Contrastive Learning for Few-shot Unsupervised Domain Adaptation

Lu Gong, Zili Zhang, Wen Zhang, Mingkang Li and Jiali Zhang

Style Augmentation and Domain-aware Parametric Contrastive Learning for Domain Generalization

Mingkang Li, Zili Zhang, Jiali Zhang, Wen Zhang and Lu Gong

Learning Category Discriminability for Active Domain Adaptation

Jiali Zhang, Mingkang Li, Wen Zhang, Lu Gong and Zili Zhang

Efficient Hash Coding for Image Retrieval based on Improved Center Generation and Contrastive Pre-training Knowledge Model

Ye Liu, Yan Pan and Jian Yin

udPINNs: An Enhanced PDE Solving Algorithm Incorporating Domain of Dependence Knowledge

Nanxi Chen, Jiyan Qiu, Pengcheng Shi, Wu Yuan and Jian Zhang

A Multifactorial Evolutionary Algorithm based on Model Knowledge Transfer

Xuan Lu, Lei Chen and Hai-Lin Liu

Session 7B: Deep Learning-based Applications (Conference Room SAPPHIRE&TOPAZ 2F)

10:45-12:15, Aug 18

Learning-based Dichotomy Graph Sketch for Summarizing Graph Streams with High Accuracy

Ding Li, Wenzhong Li, Yizhou Chen, Xu Zhong, Mingkai Lin and Sanglu Lu

Conf-UNet: A model for speculation on unknown Oracle Bone Characters

Yuanxiang Xu, Yuan Feng, Jiahao Liu, Shengyu Song, Zhongwei Xu and Lan Zhang

Sparse-view CT Reconstruction via Implicit Neural Intensity Functions

Qiang Chen and Guoqiang Xiao

Monte Carlo Medical Volume Rendering Denoising via Auxiliary Feature Guided Self-Attention and Convolution Integrated

Guodong Zhang, Wenliang Zhang and Jihang Duan

Network Flow Based IoT Anomaly Detection Using Graph Neural Network

Chongbo Wei, Gaogang Xie and Zulong Diao

Disentangled Multi-factor Graph Neural Network for Non-coding RNA-drug Resistance Association Prediction

Hui Li, Miaomiao Sun, Kuisheng Chen and Zhenfeng Zhu

Session 7C: Misc Learning Systems (Conference Room DIAMOND&EMERALD 1F)

10:45-12:15, Aug 18

FedDroidADP: An Adaptive Privacy-Preserving Framework for Federated-Learning-based Android Malware Classification System

Changnan Jiang, Chunhe Xia, Zhuodong Liu and Tianbo Wang

Multi-layer Attention Social Recommendation System based on Deep Reinforcement Learning

Yinggang Li and Xiangrong Tong

TGKT-based Personalized Learning Path Recommendation with Reinforcement Learning

Zhanxuan Chen, Zhengyang Wu, Yong Tang and Jinwei Zhou

Multi-task learning based skin segmentation

Zhenghao Shan and Taizhe Tan

Citation Recommendation Based on Knowledge Graph and Multi-task Learning

Jing Wan, Minghui Yuan, Danya Wang and Yao Fu

MT-BICN: Multi-task Balanced Information Cascade Network for Recommendation

Haotian Wu and Yubo Gao

■ Presentation Arrangements

Session 8A: Knowledge Graph Learning (Conference Room OPAL&RUBY 2F)

14:30-16:00, Aug 18

Critical Node Privacy Protection Based on Random Pruning of Critical Trees

Lianwei Qu, Yong Wang and Jing Yang

Dealing with Over-reliance on Background Graph for Few-shot Knowledge Graph Completion

Ruiyi Yang and Xiao Wei

Joint Label-Structure Estimation from Multifaceted Graph Data

Qianqian Peng, Ziming Tang, Xinzhi Yao, Sizhuo Ouyang, Zhihan He and Jingbo Xia

Dual Channel Knowledge Graph Embedding with Ontology Guided Data Augmentation

Tengwei Song, Long Yin, Xudong Ma and Jie Luo

Multi-Dimensional Graph Rule Learner

Jiayang Wu, Wensheng Gan and Zhenlian Qi

Robust Few-shot Graph Anomaly Detection via Graph Coarsening

Liting Li, Yueheng Sun, Tianpeng Li and Minglai Shao

Session 8B: Knowledge Learning via Reinforcement Learning (Conference Room SAPPHIRE&TOPAZ 2F)

14:30-16:00, Aug 18

Deep Reinforcement Learning for Group-Aware Robot Navigation in Crowds

Xianwei Zhou, Xin Ye, Kun Zhang and Songsen Yu

PRACM: Predictive Rewards for Actor-Critic with Mixing Function in Multi-Agent Reinforcement Learning

Sheng Yu, Bo Liu, Wei Zhu and Shuhong Liu

KSRL: Knowledge Selection based Reinforcement Learning for Knowledge-Grounded Dialogue

Zhanyu Ma, Shuang Cheng and Jian Ye

Ensemble Strategy Based on Deep Reinforcement Learning for Portfolio Optimization

Xiao Su, Yalan Zhou, Shanshan He and Xiangxia Li

Offline Reinforcement Learning with Diffusion-Based Behavior Cloning Term

Han Wang, Youfang Lin, Sheng Han and Kai Lv

Task Inference for Offline Meta Reinforcement Learning via Latent Shared Knowledge

Ying Zhou, Shan Cong and Chao Yu

Session 8C: Deep Learning Approaches for Knowledge Systems

(Conference Room DIAMOND&EMERALD 1F)

14:30-16:00, Aug 18

MVARN: Multi-view attention relation network for figure question answering

Yingdong Wang, Qingfeng Wu, Weiqing Lin, Linjian Ma and Ying Li

MAGNN-GC: Multi-Head Attentive Graph Neural Networks with Global Context for Session-based Recommendation

Yingpei Chen, Yan Tang, Peihao Ding and Xiaobing Li

Chinese Relation Extraction with Bi-directional Context-based Lattice LSTM

Chengyi Ding, Lianwei Wu, Pusheng Liu and Linyong Wang

A Session Recommendation Model based on Heterogeneous Graph Neural Network

Zhiwei An, Yirui Tan, Jinli Zhang, Zongli Jiang and Chen Li

A Graph Neural Network for Cross-Domain Recommendation Based on Transfer and Inter-Domain Contrastive Learning

Caihong Mu, Jiahui Ying, Yunfei Fang and Yi Liu

A Hypergraph Augmented and Information Supplementary Network for Session-based Recommendation

Jiahuan Chen, Caihong Mu, Mohammed Alloaa and Yi Liu

Session 9A: Hybrid Learning Approaches (Conference Room OPAL&RUBY 2F)

16:15-17:45, Aug 18

Automatic Gaussian Bandwidth Selection for Kernel Principal Component Analysis

Kai Shen, Haoyu Wang, Arin Chaudhuri and Zohreh Asgharzadeh

DSEAformer: Forecasting by De-stationary Autocorrelation with Edgebound

Peihao Ding, Yan Tang, Yingpei Chen and Xiaobing Li

RTAD-TP: Real- Time Anomaly Detection Algorithm for Univariate Time Series Data Based on Two- Parameter Estimation

Qiyun Fan, Yan Tang, Xiaoming Ding, Qianglong Huangfu and Peihao Ding

Kernel-based feature extraction for time series clustering

Yuhang Liu, Yi Zhang, Yang Cao, Ye Zhu, Nayyar Zaidi, Chathu Ranaweera, Gang Li and Qingyi Zhu

MixUNet: A Hybrid Retinal Vessels Segmentation Model Combining The Latest CNN and MLPs

Ziyan Ke, Lingxi Peng, Xuebing Luo, Jinghui Lin, Zhiwen Yu and Yiduan Chen

Session 9B: Misc Knowledge Learning Applications (Conference Room SAPPHIRE&TOPAZ 2F)

16:15-17:45, Aug 18

Knowing before Seeing: Incorporating Post-Retrieval Information into Pre-Retrieval Query Intention Classification

Xueqing Ma, Xiaochi Wei, Yixing Gao, Runyang Feng, Dawei Yin and Yi Chang

LSRN: Live-Streaming Identification Based on Reasoning Network with Core Traffic Set

Yingshuo Bao, Shuaili Liu, Zhongfeng Qu and Lizhi Peng

Reversible Data Hiding in Encrypted Images Based on A Multi-Granularity Adaptive Classification Mechanism

Zhang Yaling, Zou Yicheng, Wang Chao, Huang Chengcheng and Yin Shiqun

DBA: An Efficient Approach to Boost Transfer-based Adversarial Attack Performance through Information Deletion

Zepeng Fan, Peican Zhu, Chao Gao, Jinbang Hong and Keke Tang

Modeling Chinese Ancient Book Catalog

Linxu Wang, Jun Wang and Tong Wei

A Cross-Document Coreference Resolution Approach to Low-Resource Languages

Nathanon Theptakob, Thititorn Seneewong Na Ayutthaya, Chanatip Saetia, Tawunrat Chalothorn and Pakpoom Buabthong

Session 9C: Misc Knowledge Learning Technologies (Conference Room DIAMOND&EMERALD 1F)

16:15-17:45, Aug 18

A Cybersecurity Knowledge Graph Completion Method for Scalable Scenarios

Peng Wang, Jingju Liu, Qian Yao and Xinli Xiong

Research on remote sensing image classification based on Transfer learning and Data Augmentation

Liyuan Wang, Yulong Chen, Xiaoye Wang, Ruixin Wang, Hao Chen and Yinhai Zhu

Univariate Time Series Forecasting via Interactive Learning

Yu Li, Haonan Li, Xu Cui and Zhenguo Zhang

Joint Community and Structural Hole Spanner Detection via Graph Contrastive Learning

Jingyuan Zhang, Wenjun Wang, Tianpeng Li, Minglai Shao, Jiye Liu and Yueheng Sun

A Reinforcement Learning-based Approach for Continuous Knowledge Graph Construction

Jiao Luo, Yitao Zhang, Ying Wang, Wolfgang Mayer, Ningpei Ding, Xiaoxia Li, Yuan Quan, Debo Cheng, Hong-Yu Zhang and Zaiwen Feng



Transportation

approximately 8.6 kilometers away

Guangzhou Baiyun International Airport — Guangzhou Huadu Crowne Plaza



Taxi 15 minutes | approximately 25 yuan.



Metro Take Line 3 (North Extension) from the airport and transfer to Line 9 (Fei'ge Ling direction) at Gaozeng Metro Station. Take 1 stop to Qingtang Metro Station, and take Exit D. Walk for 3 minutes to reach the conference hotel.

approximately 8.9 kilometers away

Guangzhou North Railway Station — Guangzhou Huadu Crowne Plaza



Taxi 20 minutes | approximately 30 yuan.



Metro Take Line 9 (Gaozeng direction) from Guangzhou North Railway Station, go 7 stops to Qingtang Metro Station, and take Exit D. Walk for 3 minutes to reach the conference hotel.

approximately 29 kilometers away

Guangzhou Railway Station — Guangzhou Huadu Crowne Plaza



Taxi 30 minutes | approximately 80 yuan.



Metro Take Line 2 (Jiahe Wanggang direction) from Guangzhou Railway Station, go 8 stops to Jiahe Wanggang, then transfer to Line 3 (North Extension) towards Airport North (Terminal 2). Go 3 stops to Gaozeng Metro Station and transfer to Line 9 (Fei'ge Ling direction). Take 1 stop to Qingtang Metro Station, and take Exit D. Walk for 3 minutes to reach the conference hotel.

approximately 60 kilometers away

Guangzhou South Railway Station — Guangzhou Huadu Crowne Plaza



Taxi 1 hour | approximately 160 yuan.



Metro Take Line 2 (Jiahe Wanggang direction) from Guangzhou South Railway Station, go 23 stops to Jiahe Wanggang, then transfer to Line 3 (North Extension) towards Airport North (Terminal 2). Go 3 stops to Gaozeng Metro Station and transfer to Line 9 (Fei'ge Ling direction). Take 1 stop to Qingtang Metro Station, and take Exit D. Walk for 3 minutes to reach the conference hotel.



Attractions in the City

Guangzhou Rongchuang Amusement Park

Guangzhou Rongchuang Amusement Park is located in Huadu District, Guangzhou, and features eight major formats. Among them, the park consists of six main themed areas, including Snow World, Water World, Rongchuang Park, Sports World, and other themed amusement parks. It offers 31 amusement facilities and 12 performance projects.

Guangzhou Rongchuang Snow World has four different difficulty levels of skiing slopes and a snow entertainment area, catering to both recreational and sports needs simultaneously. Guangzhou Rongchuang Water World maintains a constant temperature throughout the year and is designed with the theme of the "Maritime Silk Road," featuring three major themed zones. Guangzhou Rongchuang Sports World has five functional zones and 23 entertainment projects.

The surrounding area is equipped with Rongchuang Mao Commercial Center, a cluster of star-rated hotels, a lakeside bar street, and a grand theater, creating an all-in-one lifestyle and entertainment center.



Chen Clan Academy



The Chen Clan Academy, also known as "Chen's Academy," and commonly referred to as Chen Family Ancestral Hall, is located on Zhongshan 7th Road in Guangzhou. It is one of the largest existing traditional Cantonese buildings and also the largest, best-preserved, and exquisitely decorated ancestral hall-style architecture in China. It is praised as the "Pearl of Lingnan Architectural Art."

The Chen Clan Academy is also the location of the Guangdong Folk Craft Museum, which is a national-level museum. It houses more than 20,000 precious cultural relics and modern craft masterpieces, including nearly 3,000 national-level precious cultural relics. It is one of the most abundant art museums in Guangdong province that collects folk craft masterpieces since the Ming and Qing dynasties. It includes various crafts such as Shiwan pottery, Guangcai porcelain, ivory carving, Yue embroidery, Guangzhou wood carving, brick carving, stone carving, and other carriers of multiple techniques, covering all craft categories in Guangdong province that have been included in the national-level intangible cultural heritage list.

Attractions in the City

Huangpu Military Academy

The Huangpu Military Academy was a renowned military school established during the period of the Chinese Revolution through the cooperation of the Kuomintang (Nationalist Party) and the Chinese Communist Party. In January 1924, under the guidance of the Communist International and with the assistance of the Chinese Communist Party, the First National Congress of the Kuomintang decided to establish an Army Officer School based on the battalion system. Due to its location on Huangpu Island outside Guangzhou, it became known as the Huangpu Military Academy.

The Memorial Hall of the Former Site of Huangpu Military Academy is the only memorial hall in China dedicated to preserving the historical and cultural buildings of the Huangpu Military Academy and showcasing its development history as the core content. Established in 1984, the memorial hall has been devoted to the collection and preservation of revolutionary sites and cultural relics, exhibition and display, propaganda and education, as well as scientific research. It has been listed as a national classic red tourism destination and has been honored with titles such as National Patriotic Education Demonstration Base, National Defense Education Demonstration Base, Cross-Straits Exchange Base, China Overseas Chinese Federation Patriotic Education Base, Guangdong Province Patriotic Education Base, and Top Ten Business Cards of Lingnan Culture.



At 422.8 meters on the tower, there is a revolving restaurant, which is the highest revolving restaurant in the world. At the top of the tower, at 450 to 454 meters, there is a sky drop amusement ride. At a height of 455 to 485 meters on the antenna mast, there is the "Super Scream" speed descent amusement ride, which is the world's highest vertical free-fall ride.

Canton Tower

The Guangzhou Tower (English: Canton Tower), also known as the Guangzhou New TV Tower, and nicknamed "Xiao Man Yao" (Little Waist), is located near the Chigang Tower on Yizhou Island in Haizhu District, Guangzhou. It stands 125 meters away from the southern bank of the Pearl River, facing Zhujiang New Town, Huacheng Square, and the Heart of the Sea Island across the river. The main body of the Guangzhou Tower is 454 meters tall, with an antenna mast reaching 146 meters, making its total height 600 meters. It is the tallest tower in China and the second tallest in the world, only surpassed by the Tokyo Skytree. The tower has been rated as a National AAAA-level tourist attraction.

At a height of 168 to 334.4 meters on the tower, there is a "Spiderman Skywalk," which is the world's highest and longest aerial

Site of the Third National Congress of the Communist Party of China



The "Site of the Third National Congress of the Communist Party of China Memorial Hall" is located at No. 3 Xuguyuan Road, Yuexiu District, Guangzhou, Guangdong Province. It consists of three main areas: the Memorial Square of the Site of the First National Congress of the Communist Party of China, the Former Site of the Central Committee of the Communist Party of China - Chunyuan, and the Exhibition Hall of the History of the First National Congress of the Communist Party of China.

Inside the Memorial Hall, there are four exhibition units titled "Exploration and Quest," "Consensus Building," "Storm and Momentum," and "Light of Ideals," which comprehensively showcase the historical background before the convening of the First National Congress of the Communist Party of China,

the process of the congress, the significant historical achievements it achieved, and the important influence it had on the process of the Chinese revolution.

Sun Yat-sen Memorial Hall

Guangzhou Sun Yat-sen Memorial Hall is a hall-style building funded and constructed by the people of Guangzhou and overseas Chinese to commemorate the great revolutionary forerunner, Mr. Sun Yat-sen. It was designed by the renowned Chinese architect, Mr. Lu Yanzhi, and completed in 1931, serving as an important landmark along the central axis of modern Guangzhou.

The Sun Yat-sen Memorial Hall is a landmark building in modern Guangzhou, representing a perfect combination of traditional Chinese architectural style and Western architectural structure. Its exterior emulates the architectural form of palaces from the Song Dynasty, with octagonal ridged roofs and corner eaves, showcasing a striking combination of blue-glazed tiles and red-colored door and window pillars. The interior utilizes steel and reinforced concrete structures, creating a grand and magnificent space with large spans.

Today, the Guangzhou Sun Yat-sen Memorial Hall serves as a multifunctional complex for commemoration, tourism, conferences, and performances. It is a nationally protected key cultural relic unit and a National AAAA-level tourist attraction, serving as a historical business card for Guangzhou.



