

AUGUST 16TH-18TH, 2024
BIRMINGHAM

KSEM 2024

THE 17TH INTERNATIONAL CONFERENCE ON
KNOWLEDGE SCIENCE, ENGINEERING AND MANAGEMENT



Springer





INTRODUCTION TO

BIRMINGHAM CITY UNIVERSITY

Located in the heart of Birmingham, BCU is a vibrant and diverse institution renowned for its practice-based learning. Established in 1971 as The City of Birmingham Polytechnic, BCU champions inclusivity and innovation.

BCU excels in high-impact research tackling global challenges. In health and life sciences, pioneering work in public health, medical technology, and clinical practices enhances patient care. Engineering and built environment research advances sustainable construction, digital manufacturing, and smart cities. In business and law, collaboration with industry leaders drives innovation in management and legal practices. The Faculty of Arts, Design, and Media enriches creative industries through the intersection of technology, culture, and society.

BCU's commitment to academic excellence fuels progress and shapes a better future through education and research.





Birmingham City University delivers high-quality education designed for career success. The curriculum is regularly updated to reflect industry trends and research advancements, offering flexibility to meet the needs of both students and employers. Expert faculty bring extensive industry knowledge to the classroom, fostering a supportive and engaging learning environment that promotes critical thinking and innovation.

Prioritizing personalized learning, BCU utilizes diverse teaching methods to cater to various learning styles. Numerous practical experiences are provided through internships, placements, and collaborative projects with industry partners, enhancing students' professional networks and real-world skills.

BCU actively collaborates with academic institutions, industry partners, and research organizations worldwide. These partnerships enhance research capabilities, offer international opportunities, and contribute to the global exchange of knowledge. Study abroad programs and involvement in international research projects enrich students' academic and personal growth, providing a global perspective.

Recognized for academic excellence, BCU consistently ranks highly in national and international evaluations. Research is celebrated in the Research Excellence Framework (REF), and teaching standards are commended in the Teaching Excellence Framework (TEF). Many programs hold professional accreditations, ensuring graduates meet the highest industry standards.

BCU is committed to academic excellence, innovation, and addressing global challenges through education and research. This institution is dedicated to driving progress and contributing to a better future.

INTRODUCTION TO FACULTY OF COMPUTING, ENGINEERING AND THE BUILT ENVIRONMENT

The Faculty of Computing, Engineering and the Built Environment (CEBE) at Birmingham City University is located at the City Centre Campus. Comprising two dynamic colleges, CEBE addresses modern technological challenges posed by fast-paced industries. CEBE is a hub of technological excellence and innovation, offering top-quality education in technologies and engineering.



The faculty equips students with essential technical skills, preparing them to make significant contributions in the workplace and the wider industry. Strong industry links enable students to engage in cutting-edge research and contribute to business advancements.

International collaborations foster knowledge-sharing and offer opportunities for overseas exchanges. CEBE's vibrant community can be experienced during open days, where prospective students can explore the campus, meet current students and faculty, and immerse themselves in the university's dynamic environment.

As the West Midlands' leading hub for knowledge, technology, and skills transfer, CEBE hosts over 4,000 students and 300 staff, offering a wide range of accredited courses and robust research activities. It is recognized by esteemed bodies like the Royal Institution of Chartered Surveyors (RICS), Royal Town Planning Institute (RTPI), Chartered Institute of Building (CIOB), and Chartered Institute of Architectural Technologists (CIAT).

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THE PREFACE

The International Conference on Knowledge Science, Engineering, and Management (KSEM) has established itself as one of the premier global academic forums in the field of knowledge science and engineering.

Since its inception in 2006, KSEM has consistently achieved remarkable success, thanks to the dedicated efforts of its annual organizing committees and contributors. The conference has been hosted in various prestigious locations worldwide, including Guilin, China (2006); Melbourne, Australia (2007, 2017); Vienna, Austria (2009); Belfast, UK (2010); Irvine, USA (2011); Dalian, China (2013); Sibiu, Romania (2014); Chongqing, China (2015); Passau, Germany (2016); Changchun, China (2018); Athens, Greece (2019); Hangzhou, China (2020); Tokyo, Japan (2021); Singapore (2022); and Guangzhou, China (2023).

The primary objective of the International Conference on Knowledge Science, Engineering, and Management (KSEM) is to create a comprehensive forum that brings together researchers and practitioners from academia, industry, and government worldwide. The conference aims to present advancements in theories and state-of-the-art technologies in knowledge science, engineering, and management. Attendees are encouraged to showcase prototypes and deployed knowledge-based systems, discuss practical challenges, and explore opportunities for the research community. KSEM focuses 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).

At the 17th International Conference on Knowledge Science, Engineering, and Management (KSEM 2024), a total of 495 submissions were received. Following a rigorous single-blind review process, 160 full papers were selected for presentation at the conference. These papers encompass a diverse range of research activities, including Knowledge Science with Learning and AI (KSLA), Knowledge Engineering Research and Applications (KERA), Knowledge Management with Optimization and Security (KMOS), Emerging Technology, and more. This broad spectrum of topics highlights the conference's commitment to advancing the fields of knowledge science, engineering, and management.

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

- Prof. Mykola Pechenizkiy, Professor, Chair of Data Mining at the Department of Mathematics and Computer Science Eindhoven University of Technology; with the presentation titled Understanding Unfairness in Algorithmic Decision Making
- Andrew Boxall, Account Technology Strategist, Microsoft; with the presentation titled The evolution and Impact of AI: From History to Modern Transformations
- Prof. Bo Luo, Professor, Department of Electrical Engineering and Computer Science Director, High Assurance and Secure Systems (HASS) Research Center Institute for Information Sciences (I2S)The University of Kansas; with the presentation topic Machine Learning and Cybersecurity: A Tale of Two Buzzwords
- Prof. Muhammad Imran, Dean of Graduate Studies for College of Science and Engineering, Dean of Transnational Engineering Education University of Glasgow; with the presentation titled Reconfigurable Intelligent Surfaces: improving the performance of communications and sensing using RF waves

We would like to express our sincere gratitude to the many contributors who have been steadfast supporters in making KSEM 2024 a great success. First and foremost, we extend our heartfelt thanks to Birmingham City University, especially the staff at the Birmingham City University STEAMHouse and the College of Computing within the Faculty of Computing, Engineering, and the Built Environment, for their invaluable support and hospitality. We also thank the staff at MEERLABS UK for providing resources and support for many local organisational activities.

The Local Organizing Committee of KSEM 2024

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THE KSEM 2024 PROGRAM

AUG 15

TIME	ACTIVITY
14:30 - 16:30	Registration (Curzon building Lobby)
18:00 - 20:00	Internal meeting

AUG 16

TIME	ACTIVITY
9:00-9:30	Opening ceremony (Main room): 1. Introduction to the conference organizers and distinguished guests 2. Welcome speech by the Leader of Birmingham City University. 3. Speech from the General Co-Chair. 4. Speech from the PC Co-Chair. 5. Group photo session.
09:30 - 10:30	Keynote 1 (Main room): Prof. Mykola Pechenizkiy, Eindhoven University of Technology
10:30-10:45	Coffee Break
10:45-11:45	Keynote 2 (Main room): Andrew Boxall, Microsoft

TIME	ACTIVITY		
	Main Room	Room 1	Room 2
11:45 - 13:00	Lunch Break		
13:00-14:00	Session A1	Session B1	Session C1
14:00-15:00	Session A2	Session B2	Session C2
15:00 - 15:30	Coffee Break		
15:30-16:30	Session A3	Session B3	Session C3
16:30-17:30	Session A4	Session B4	Session C4
17:30-18:30	Session A5	Session B5	Session C5
18:30-20:00	Banquet (STEAMHouse ground floor)		

AUG 17

TIME	ACTIVITY
9:00-10:00	Keynote 3 (Main room): Prof. Bo Luo, The University of Kansas
10:00-11:00	Keynote 4 (Main room): Prof. Muhammad Imran, University of Glasgow
11:00-11:30	Coffee Break

TIME	ACTIVITY		
	Main Room	Room 1	Room 2
11:30-12:30	Session A6	Session B6	Session C6
12:30-13:30	Lunch Break (Main)		
13:30-14:30	Session D1	Session D2	Session E1
14:30-15:30	Session D3	Session D4	Session E2
15:30-16:00	Coffee Break		
16:00-17:00	Session D5	Session E3	Session E4
16:00-17:00	Session D6	Session E5	Session E6
	Social Activities		

AUG 18

TIME	ACTIVITY
10:00-12:00	Steering Committee Meeting
Afternoon	Sightseeing

THE

DOCTORAL COLLOQUIUM TIMETABLE

Curzon Building (C484)

AUG 16

TIME	ACTIVITY
09:00-9:30	Opening ceremony (Conference Main room)
09:30-10:30	Keynote 1 (Conference Main room): Prof. Mykola Pechenizkiy, Eindhoven University of Technology
10:30-10:45	Coffee Break
10:45-11:45	Keynote 2 (Conference Main room): Andrew Boxall, Microsoft
11:45-13:00	Lunch Break
13:00-14:00 (AI and GenAI) Chair: Dr. Martin Esugo In Curzon (C484)	"Enabling Joint Robot Planning Through Human Interaction With Large Language Models" by Kosisochukwu , BCU "Enhancement of LLMs-based Translation by Agentic Machine Translation in Thai Language " by Artid Boonrerng , BCU "Tuning LLMs for enhanced Chronic Disease Information Retrieval" by Serugunda Mukalazi , Xiangtan University
	"O-RAN Assistant: Leveraging RAG for Efficient O-RAN Installation and Configuration" By Vishalji Odedra , BCU
	"Adoption of Large Language Models in Implementation of Hiring Decision Support Systems by Oluwatobi Oluwadamilola , BCU

TIME	ACTIVITY
14:00-15:00 (Security) Chair: Dr. Haitham Mahmoud In Curzon (C484)	"Knowledge Management Strategy: A case study from the property insurance sector" by Qirui Zhang , Loughborough Business School "A systematic review of security operations centre: current strategies and way forward" by Kamran Ashtari , BCU "TreeBagger IDS Approach for Enhanced 5GC PFCP Dataset Classification" By Oluwadara Osudeinde , BCU "ENHANCING NETWORK ANOMALY DETECTION with UNSW-NB15 Data Analysis" by Shinje Zacharia , BCU
15:00-15:30	Round Discussion on the future of AI and Security (Speakers: Muhammad Ajmal Azad, Ron Austin, Lourentiu Nae and Abdulrahman A. Alsewari Chairs: Haitham Mahmoud and Martin Esugo)
15:30-16:00	Coffee Break
16:00-17:00 (Engineering and Environmental) Chair: Dr. Sarah Hassan In Curzon (C484)	"Advancing Leak Detection in Water Distribution Networks Through Adaptive Deep Reinforcement Learning" by Awais Javed , BCU "Effects of Various Nanofluids on the Performance of a Double Tube Heat Exchanger" by Ebrahim Tavousi , BCU "The influence of performing Non-Driving Related Tasks (NDRTs) on the drivers of conditionally automated vehicles in different road traffic conditions" by Ali Mostafavi , BCU "ASSIST: Automated Sustainable Investing Decision Making Using Data Science Techniques for Enhanced Financial Sustainability" by Buket Fildisi , BCU
17:00-18:00 (Computer Science & Emerging Technologies) Chair: Dr. Sima Iranmanesh In Curzon (C484)	"Liquid Spiking Neural Networks for Smart City Heterogeneous and Ubiquitous Sensors" by Ahmad Wahab , BCU "Enhancing Multilingual Education: A Mobile Application for Real-time Lecture Translation using Advance NMT" by Shekhar Joshi , BCU "Accessibility in the Unreal Engine Editor: Exploring Alternative Input Methods" by Finn Dudley , BCU

TIME	ACTIVITY
17:00-18:00 (Computer Science & Emerging Technologies) Chair: Dr. Sima Iranmanesh In Curzon (C484)	"Designing Mobile Interfaces for People Living with Dementia" Kristy Link , BCU "Digital transformation for smart net zero cities based on systems thinking" by Farzaneh Mohammadi , BCU
18:00-18:30	Round Discussion on the Future of Computer Science and emerging technologies within the environment and engineering applications (Speakers: Mohammad Mayouf, Sarah Hassan, and Foroogh Hajiseyedjavadi , and Harry Conway Chairs: Wenge Xu and Sima Iranmanesh)
18:30-20:00	Banquet (STEAMHouse ground floor)

THE

KEYNOTE ABSTRACT



Prof. Mykola Pechenizkiy

Aug 16, 09:30 - 10:30 AM

Prof. Mykola Pechenizkiy, Professor, Chair of Data Mining at the Department of Mathematics and Computer Science, Eindhoven University of Technology

Title:

Understanding Unfairness in Algorithmic Decision Making

Abstract:

Non-discrimination in algorithmic decision-making has been extensively studied across various research communities. Numerous fairness metrics have been proposed, and several fair machine learning (fairML) techniques have been developed. However, conclusively determining whether a particular fairML approach results in discriminatory outcomes remains challenging. In this talk, I will explain these challenges and address three related questions: Can fairness be automated? Does the end justify the means? Should we expect to trade off accuracy to make decision-making more fair?



Andrew Boxall

Aug 16, 10:45 - 11:45 AM

Andrew Boxall, Account Technology Strategist, Microsoft

Title:

The evolution and Impact of AI: From History to Modern Transformations

Abstract:

This session will provide a comprehensive introduction to AI, exploring its historical development and foundational principles. We will discuss cutting-edge AI technologies and their transformative effects across various industries. The talk will conclude with an Q&A session, offering attendees the opportunity to dive deeper into AI topics with our experts.



Prof. Bo Luo

Aug 17, 09:00 - 10:00 AM

Prof. Bo Luo, Professor, Department of Electrical Engineering and Computer Science; Director, High Assurance and Secure Systems (HASS) Research Center Institute for Information Sciences (IIS), The University of Kansas

Title:

Machine Learning and Cybersecurity: A Tale of Two Buzzwords

Abstract:

Recent advances in machine learning, especially generative AI, have made significant impacts on a wide range of research disciplines including security and privacy. Meanwhile, a broad spectrum of cyber-attacks against machine learning systems has been proposed. Such attacks aim to break the integrity or confidentiality of the models. In this talk, I will discuss the synergy between cybersecurity and AI/ML, and introduce several research projects from KU's InfoSec group on adversarial/trustworthy machine learning. Through this talk, we hope to highlight the security and privacy issues in AI/ML systems, which may be helpful for the audience to identify the opportunities and challenges in their own research fields.



Prof. Muhammad Imran

Aug 17, 10:00 - 11:00 AM

Prof. Muhammad Imran, Dean of Graduate Studies for College of Science and Engineering; Dean of Transnational Engineering Education, University of Glasgow

Title:

Reconfigurable Intelligent Surfaces: improving the performance of communications and sensing using RF waves

Abstract:

In an increasingly interconnected world, the ability to establish reliable communication as well as sense the environment and human health vitals is becoming very important. This talk will share some recent research results and future directions in the development of the future telecom systems (e.g. 6G) for improving both communications performance and sensing accuracy. Drawing on reflections from successful projects we will present the future promising directions. Join us as we uncover the future of global connectivity and the transformative impact it promises for societies worldwide.

THE

PRESENTATION ARRANGEMENTS

Session A1:

- **Jinbiao Tan, Jiafu Wan, Hu Cai, Xiaowei Chen and Baotong Chen.** A Deep Correlation Feature Extraction Network: Intelligent Description of Bearing Fault Knowledge for Zero-Sample Learning.
- **Wei Hu, Yi Han and Fang Liu.** Elastic Filter Prune in Deep Neural Networks using Modified Weighted Hybrid Criterion.
- **Yuanlong Wang and Yanhua Yu.** InterpretableEE: An LLM-Generated CoT Based Event Extraction Framework.
- **Jiamin Liu, Wei Su, Lei Liu, Chuan Cai, Yongna Yuan, Zhongfeng Jia, Wenli Yue and Bowang Liu.** Attention and Learning Features-enhanced Knowledge Tracing.
- **Jinlong Liu and Xudong Luo.** An MLM Decoding Space Enhancement for Legal Document Proofreading.

Session A2:

- **Yan Chu, Keshi Liu, Songhao Jiang and Xianghui Sun.** Meta-Pruning: learning to prune on few-shot learning.
- **Yin Fang, Zhuo Chen, Xiaohui Fan, Ningyu Zhang and Huajun Chen.** Knowledge-informed Molecular Learning: A Survey on Paradigm Transfer.
- **Abdul Arbaz, Heng Fan, Junhua Ding, Meikang Qiu and Yunhe Feng.** GenFlowchart: Parsing and Understanding Flowchart Using Generative AI.
- **Zixuan Hong, Weipeng Cao, Zhiwu Xu, Zhong Ming, Chuqing Cao and Liang Zheng.** DSCVSR: A Lightweight Video Super-Resolution for Arbitrary Magnification
- **Xiaopeng Guo.** Programming Knowledge Tracing via Context and Structure Aware Transformer

Session A3:

- **Yong Zhu, Shuai Xiao, Zuo Zhang, Jiabao Wen, Meng Xi and Jiachen Yang.** An Knowledge-Based Semi-supervised Active Learning Method for Precision Pest Disease Diagnostic
- **Dongjie Yuan, Bin Yuan and Yan Zhong.** Multi-Label Feature Selection with Adaptive Subspace Learning.
- **Porchourng Chuor, Ashwin Ittoo and Samed Heng.** User Story Classification with Machine Learning and LLMs.
- **Xiao Li, Junkai Yan, Weishi Zheng and Jianjian Jiang.** PTMA: Pre-trained Model Adaptation for Transfer Learning
- **Yingshuang Guo, Jianfei Zhang, Chen Li, Yuanxin Ouyang and Wenge Rong.** Research on Multiple-choice Question Generation Technology Based on Knowledge Graph

Session A4:

- **Luyao Yu, Qi Zhang, Chongyang Shi and An Lao.** Reinforced Subject-aware Graph Neural Network for Related Work Generation.
- **Pengfei Jing, Jiguo Liu, Chao Liu and Meimei Li.** EFCC-IeT: Cross-modal Electronic File Content Correlation via Image-enhanced Text.
- **Hongpu Liu, Jingfei Jiang, Kaixin Wang, Lingshu Kong and Jingshu Wang.** Multi-relation Neural Network Recommendation Model Based on Knowledge Graph Embedding Algorithm
- **Rong Qian, Yuchen Zhou, Zongfang Lv, Ziqiang Fu, Xiaoyu Liu and Kejun Zhang.** Link prediction based on deep global information in heterogeneous graph
- **Xiuxia Tian, Zhuang Pei and Bingxue Li.** Subject Knowledge Entity Relationship Extraction Based on Multi-Feature Fusion and Relation Specific Horns Tagging.
- **Xudong Luo, Ying Luo, Yifan Fan and Yanling Li.** A Human-Computer Negotiation Model based on Q-Learning.

Session A5:

- **Jiahao Jiang, Fei Pu, Jie Cui and Bailin Yang.** Affine Transformation based Knowledge Graph Embedding
- **Luyang Zheng, Hailan Jiang, Jian Wang and Yuqing Sun.** Integrating Prior Scenario Knowledge for Composition Review Generation
- **Qiming Zhao, Chuantao Yin, Xin Fan, Hui Chen, Yanmei Chai and Yuanxin Ouyang.** Distant supervised relation extraction on pre-train model with improved multi-label attention mechanism

- **Qiming Zhao, Chuantao Yin, Xin Fan, Hui Chen, Yanmei Chai and Yuanxin Ouyang.** Distant supervised relation extraction on pre-train model with improved multi-label attention mechanism
- **Shuo Yan, Hongjun Dai, Ruomei Wang, Long Zhang and Guan Wang.** sEMG-based Multi-View Feature-Constrained Representation Learning.
- **Songhao Jiang, Yan Chu, Tianxing Ma, Xiaochen Miao, Zhengkui Wang and Tianning Zang.** Vicinal Data Augmentation for Classification Model via Feature Weaken
- **Geying Chen, Anyang Zhong, Jing Peng and Jianfei Yin.** STM an Improved Peak Price Tracking-Based Online Portfolio Selection Algorithm

Session A6:

- **Wenxin Dong, Zili Zhang, Huangyao Deng and Chi Zhang.** Spatiotemporal Dependence Learning with Meteorological Context for Transportation Demand Prediction
- **Rong Sun, Wenjie Yang, Fuyan Zhang, Yanzhuo Xiang, Hengxi Wang, Yuncheng Jiang.** Automatic Meter Pointer Reading Based on Knowledge Distillation
- **Wang Bing and Wang Chunhao.** Correlation-Based Method for Answering Questions Across Multiple Tables with Precomputed Data Cubes.
- **Jie Wu and Mengshu Hou.** A Joint Multi-task Learning Model for Web Table-to-Knowledge Graph Matching
- **Yantao Liu, Zixuan Li, Xiaolong Jin, Yucan Guo, Long Bai, Saiping Guan, Jiafeng Guo and Xueqi Cheng.** An In-Context Schema Understanding Method for Knowledge Base Question Answering
- **Xingyuan Li, Wei Hu, Jianhua Lu and Fang Liu.** Performance Enhancement Strategies for Node Classification Based on Graph Community Structure Recognition

Session B1:

- **Tao Liu, Li Zhang, and Guangchen Dongye.** Research on Node Cluster Analysis in Brain Connection Data
- **Qiming Zhao, Jing Wu and Hong Liu, Yuncheng Jiang.** A New Emotion Classification Method Based on JAN-VMD
- **Alae Eddine Tabiti and Pei Songwen.** Neuro-Genetic System: A Hybrid System of CNN-BiLSTM Optimized by Genetic Algorithm for Road.
- **Yongheng Li, Zhen Huang, Changjian Wang, Tianfu He, Menglong Lu and Zeyun Zhao.** MoveFormer: Spatial Graph Periodic Injection Network for Next POI Recommendation

- **Jinghui Feng, Xukun Zhang and Lihua Zhang, Jiafeng Guo and Xueqi Cheng.** Bio-Inspired Feature Selection via An Improved Binary Golden Jackal Optimization Algorithm

Session B2:

- **Jiawei Liu, Jing Wu, Yu Han, Wei Hu and Ping Zhang.** Dynamic Reliability-optimised and Energy-efficient Scheduling Algorithms in Heterogeneous Multi-core Systems
- **Yanling Li, Sihan Yin, Xudong Luo and Binxia Yang.** A Human-Computer Negotiation Model Based on Sentiment Analysis and Big Data
- **Huihuang Lu, Weidong Zou and Weipeng Cao.** A novel online sequential learning algorithm for ELM based on optimal control.
- **Hao Dong, Haochen Liang, Jing Yu and Keke Gai,** DICES: Diffusion-Based Contrastive Learning with Knowledge Graphs for Recommendation
- **Jinglan Deng, Xiaohui Pan, Hanyu Yang and Jianfei Yin.** Variational Loss of Random Sampling for Searching Cluster Number

Session B3:

- **Tianchi Wang.** MLP-Enhanced DiffusionNER: Rethinking Named Entity Recognition
- **Zirui Hu, Zheng Zhang, Wenjun Feng and Qi Liu.** Achieving Universal Fairness in Machine Learning: A Multi-objective Optimization Perspective
- **Junbo Huang.** SSNF: Optimizing Entity Alignment with a Novel Structural and Semantic Neighbor Filtering
- **Cheng Tang, Li Chen, Tsubasa Minematsu, Fumiya Okubo, Yuta Taniguchi and Atsushi Shimada.** Visual Analytics of Learning Behavior Based on the Dendritic Neuron Model
- **Juan Chen and Haiyang Jia.** Feature Matching Based Heterogeneous Transfer Learning for Student Performance Prediction
- **Renhu Bu, Shuang Li, Chi Harold Liu, Weipeng Cao and Zhong Ming.** Weighted Multiple Source-Free Domain Adaptation Ensemble Network in Intelligent Machinery Fault Diagnosis

Session B4:

- **Zhiwei Sun, Jun Bai, Zhenzi Li, Chen Li, Wenge Rong, Yuanxin Ouyang and Zhang Xiong.** Logarithm of Maximum Posterior Evidence: Advanced Model Selection for Text Classification

- **Jiayuan Yang and Junhua Wang.** A Hybrid Method Combing Reinforcement Learning and Heuristics in Solving Two-Echelon Vehicle Routing Problem with Backhauls
- **Xiaojin Chen, Tianyue Chen, Jingbo Zhao and Yaojun Wang.** AgriBERT: A Joint Entity Relation Extraction Model Based on Agricultural Text
- **Mengqian Zhang, Jiaxun Li and Li Tao.** Research on Key Node Cluster Identification Algorithm based on Louvain and Cycle Ratio
- **Sharareh Alipour, Emran Shahbazi and Mohammadamin Raeisi.** Uncertain \$k\$-center Clustering, Revisited: Point Assignment
- **Xiaohui Pan, Jinglan Deng, Hanyu Yang, Jing Peng and Jianfei Yin.** DPSPC: A Density Peak-based Statistical Parallel Clustering Algorithm for Big Data

Session B5:

- **Siqi Hou, Zhijing Wu and Dandan Song.** Insert Commonsense Knowledge through Semantics for Dialogue Generation
- **Yubin Chen, Yexing Du, Jing Wan, Jifan Yu, Lei Hou and Juanzi Li.** Entity Set Expansion based on Category Prompts in MOOCs
- **Fang Liu, Heyuan Li, Ziyu Chen, Wei Hu, Min Peng and Fei Wang.** ViT Hybrid Channel Fit Pruning Algorithm for Co-Optimization of Hardware and Software for Edge Device
- **Hao Chi, Shuo Xu, Rui Zhang, Chao Wang and Hui Xia.** Collaborative Adversarial Learning for Unsupervised Federated Domain Adaptation
- **Yiyu Wang, Xunzhi Xiang, Jungang Xu and Yingfei Sun.** Improving Image Captioning with Image Concepts of Words
- **Xiaoqian Gao, Xiabing Zhou, Rui Cao and Min Zhang.** M-HGN: Multi-information Enhanced Heterogeneous Graph Network for Multi-party Dialogue Reading Comprehension

Session B6:

- **Juan Chen and Haiyang Jia.** A Student Performance Prediction Model Based on Feature Factor Transfer
- **Jiang Yongqi, Jin Chu, Zhang Quan, Hu Biao and Tang Zhenzhou.** A Binary Multi-objective Grey Wolf Optimization for Feature Selection
- **Yekun Fang.** CS Net: A Coarse-to-fine-grained Summarization Network for Community-based Question Answering Summarization
- **Yangyang Liu and Shoubin Li.** AutoIE: An Automated Framework for Information Extraction from Scientific Literature
- **Houshen Lin, Jian Hou and Huaiqiang Yuan.** Adaptive Density Peak Clustering with Optimized Border-peeling

- **Jian Hou, Juntao Ge and Huaqiang Yuan.** Efficient Affinity Propagation Clustering Based on Szemerédi's Regularity Lemma

Session C1:

- **Nan Ding, Yong Lai and Jie Liu.** Knowledge Enhanced Zero-shot Visual Relationship Detection
- **Yunyun Qiu, Weipeng Cao, Zhijiao Xiao, Zhong Ming, Changping Ji, Jiongjiong Gu, Chuqing Cao and Liang Zheng.** WGGAL: A Practical Time Series Forecasting Framework for Dynamic Cloud Environments
- **Lanlan Chen, Xiaochuan Shi, Linjiang Zhou and Chao Ma.** Dynamic Splitting of Diffusion Models for Multivariate Time Series Anomaly Detection in A JointCloud Environment
- **Hongyu Kuang, Jingjing Zhang, Feng Yang, Long Zhang, Zhijian Huang, Weipeng Cao and Lin Yang.** VulCausal: Robust Vulnerability Detection Using Neural Network Models from a Causal Perspective
- **Gen Li, Cheng Tang, Li Chen, Takayoshi Yamashita, Daisuke Deguchi and Atsushi Shimada.** LLM-Driven Educational Ontology Learning for Enhanced Student Performance Prediction

Session C2:

- **Xiao Li, Gaojie Wu, Weishi Zheng and Jianjian Jiang.** DA-NAS: Learning Transferable Architecture for Unsupervised Domain Adaptation
- **Kaiyue Cai, Xinzhi Wang and Xiangfeng Luo.** Optimize rule mining based on constraint learning in knowledge graph
- **Peihao Ding and Yan Tang.** GC-DAWMAR: A Global-Local Framework for Long-Term Time Series Forecasting
- **Wenzhao Teng, Haigang Zhang, Weipeng Cao, Zixuan Cao and Yujun Zhang.** An improved YOLOV7 based prohibited item detection model in X-ray images
- **Xiangyun Qian, Rui Zhang, Zi Kang, Yilin Sheng and Hui Xia.** Invisible Backdoor Attacks on Key Regions Based on Target Neurons in Self-Supervised Learning

Session C3:

- **Zhilong Lv, Zhen Huang, Menglong Lu, Yuxin Yang, Zhiliang Tian, Xin Niu and Dongsheng Li.** Meta learning based Rumor Detection by Awareness of Social Bot

- **Wenxing Hong, Jun Li and Shuyan Li.** Financial FAQ Question-Answering System Based on Question Semantic Similarity
- **Pengfei Xue, Li Wen, Chenyang Wang, Chi Zhang, Huimin Ma and Miao Hu.** An illegal website family discovery method based on association graph clustering
- **Zou Jing, Zhang Shungeng and Qiu Meikang.** Different Attacks and Defenses Types for AI Cybersecurity
- **Jinzhu Liu and Peng Wu.** An Improved Ultra-Scalable Spectral Clustering Assessment with Isolation Kernel

Session C4:

- **Nady Slam.** An Ecological Model of Beliefs with Non-Axiomatized Logic
- **Xiaoshu Cui, Yalun Wu, Yanfeng Gu, Qiong Li, Endong Tong, Jiqiang Liu and Wenjia Niu.** Lurking in the Shadows: Imperceptible Shadow Black-Box Attacks against Lane Detection Models
- **Zihang Liu, Le Yu, Tongyu Zhu and Leilei Sun.** A Simple Framework for Multi-mode Spatial-Temporal Data Modeling
- **Zhengkang Fang, Keke Gai, Jing Yu, Yihang Wei, Zhentao Wei and Weilin Chan.** KEEN: Knowledge Graph-enabled Governance System for Biological Assets
- **Wenfeng He, Jiawei Lin, Yongpan Zou and Weipeng Cao.** Cop: Continuously Pairing of Heterogeneous Wearable Devices based on Heartbeat

Session C5:

- **Shuliang Jiang, Rui Zhang, Zi Kang, Zihao Chen and Hui Xia.** DFDS: Data-Free Dual Substitutes Hard-Label Black-Box Adversarial Attack
- **Yuhan Tang, Zhiyuan Wu, Bo Gao, Tian Wen, Yuwei Wang and Sheng Sun.** Logits Poisoning Attack in Federated Distillation
- **Pengyu Qiu, Yongchao Liu and Xintan Zeng.** DiVerFed: Distribution-Aware Vertical Federated Learning for Missing Information
- **Junhao Xue, Chen Li, Jun Bai, Wenge Rong, Yuanxin Ouyang and Zhang Xiong.** Prompt Based CVAE Data Augmentation for Few-shot Intention Detection
- **Haoran Xu, Meikang Qiu and Hui Zhao.** Reentrancy Vulnerability Detection Based On Improved Attention Mechanism
- **Jiayin Song, Yike Li, Yunzhe Tian, Endong Tong, Wenjia Niu, Qiong Li, Xingyu Wu, Zhenguo Zhang and Jiqiang Li.** Knowledge-Driven Reinforcement Learning Strategies for Backdoor Removal in Deep Learning Models

Session C6:

- **Lian Peng and Meikang Qiu.** AI in Healthcare Data Privacy-preserving: Enhanced Trade-off between Security and Utility
- **Lida Guo, Zimeng Li and Jingyuan Wang.** Traj-MergeGAN: A Trajectory Privacy Preservation Model Based on Generative Adversarial Network
- **Mengjie Guo.** Adversarial samples help resist malicious editing of images by models
- **Shuo Wang, Jing Yu, Keke Gai and Liehuang Zhu.** ReVFed: Representation-based Privacy-preserving Vertical Federated Learning with Heterogeneous Models
- **Jinglei Zhang, Guochang Wen, Dongdong Du, Qing Gao, Minghui Zhang and Xixin Cao.** Logit Adjustment with Normalization and Augmentation in Few-shot Named Entity Recognition
- **Tangyu Jiang, Haodi Wang and Rongfang Bie.** New Indicators and Optimizations for Zero-Shot NAS Based on Feature Maps

Session D1:

- **Shupeng Cheng, Maosheng Hu, Kunkun Wu, Xiao Liu and Xianxing Tang.** Integrated geologic terms and dual model for Chinese geological segmentation
- **Minghong Luo, Zheng Su and Yan Tang.** Random Virtual Users Bootstrap Popular Recommendation
- **Zhong Li, Jialong Huang and Meikang Qiu.** Contrastive Learning for Money Laundering Detection: Node-Subgraph-Node Method with Context Aggregation and Enhancement Strategy
- **Xiaohuan Xu, Wenjun Ma, Jinhui Wei, Suqin Tang and Yuncheng Jiang.** GCCR: GAT-Based Category-aware Course Recommendation
- **Yuchen Han, Tianyuan Liu, Yuqing Sun and Tian Huang.** Exploring Word Composition Knowledge In Language Usages

Session D2:

- **Xiaoze Wu, Qingfeng Li, Chen Chen, Xinlei Zhang, Haochen Zhao and Jianwei Niu.** L2R-Nav: A Large Language Model-Enhanced Framework for Robotic Navigation
- **Jing Zou, Shungeng Zhang and Meikang Qiu.** Adversarial attacks on Large Language Models
- **Zhen Huang, Zhongpeng Liu, Shimeng Shan and Yu Liu.** Enhancing Question Embedding with Relation Chain for Multi-hop KGQA

- **Yili Li, Jing Yu, Keke Gai and Gang Xiong.** IIU: Independent Inference Units for Knowledge-based Visual Question Answering
- **Yang Yang, Wei Xue, Huan Wang, Lin Zhang and Xianyao Gu.** Research on Blockchain-Based Trustworthy Data Sharing and Privacy Data Protection Mechanism

Session D3:

- **Lei Huang, Pan Lv, Xin Du, Ouwen Jin and Shuiguang Deng.** A Hierarchical Neural Task Scheduling Algorithm in The Operating System of Neuromorphic Computers
- **Yuxuan Liu, Jianxiong Zhang, Xuefeng Ding, Bing Guo, Dasha Hu and Yuming Jiang.** Efficient Data Asset Right Provenance for Data Asset Trading Based on Blockchain
- **Jicheng Yu, Zefeng Feng, Jiawei Li, Yixiu Qin and Yuncheng Jiang.** CGCL: A Novel Collaborative Graph Contrastive Learning Network for Chinese NER
- **Wenjiang Hu, Yanan Jiang, Mingda Ma and Hui Xia.** Scalable attack on graph data by important nodes
- **Jiakui Zhong, Yunfeng Xu and Changda Liu.** WaveSegNet: Wavelet Transform and Multi-Scale Focusing Network for Scrap Steel Segmentation

Session D4:

- **Bing Wang and Xiaoling Yang.** Recommendation Algorithm Based on Refined Knowledge Graphs and Contrastive Learning
- **Trung Phan, Bui Tien Duc, Bang Le, Bao Tran Quoc, Trong Nguyen Duong Phu, Loc Van Cao Phu, Hieu Doan Minh, Kha Nguyễn and Son Ha Xuan.** Enhancing Pet Health Record Security through RSA-Encrypted NFTs and Smart Contracts on the Blockchain
- **Yizhong Liu, Xuqi Huang, Boyu Zhao, Jiqiang Lu and Xuejun Zhang.** A Blockchain-Based Secure ADS-B System
- **Xudong Luo, Deng Zhiqi, Kaili Sun and Pingping Lin.** An Emotion-Aware Human-Computer Negotiation Model Powered by Pretrained Language Model
- **Fangfei Li and Wulin Chen.** Feature Re-enhanced Meta-Contrastive Learning for Recommendation
- **Minghong Luo, Zheng Su and Yan Tang.** ANGCN:Adaptive Neighborhood-awareness for Recommendation

Session D5:

- **Hong Guo and Jinfang Yan.** The study of named entity identification in Chinese electronic medical records based on multi-tasking
- **Jing Dong, Xudong Luo and Junlin Zhu.** A Comparative Study of Different Pre-trained Language Models for Sentiment Analysis of Human-Computer Negotiation Dialogue
- **Bui Tien Duc, Trung Phan, Bang Le, Loc Van Cao Phu, Khoa Tran Dang, Khiem Huynh, Trong Nguyen Duong Phu, Ngan Nguyen Thi Kim and Son Ha Xuan.** Integrating Blockchain and RSA-Encrypted NFTs for Enhanced Digital Knowledge Management
- **Hanyu Yang, Xiaohui Pan, Jinglan Deng and Jianfei Yin.** An Effective RSP Data Sampling Algorithm
- **Tian Gou, Boyao Zhang, Zhenglie Sun, Jing Wang, Yangang Wang and Jue Wang.** Rationality of Thought Improves Reasoning in Large Language Models
- **Mohammed Alsadi, Anum Paracha and Junaid Arshad.** NFTMosaic: Piecing Together Assets in a Unified Blockchain Token

Session D6:

- **Jianrong Yu, Congyuan Wang, Jian Yu, Mankun Zhao, Tianyi Xu, Mei Yu and Ruiguo Yu.** Global Context Enhanced Multi-Granularity Intent Networks for Session-based Recommendation
- **Bui Tien Duc, Trung Phan, Khoa Tran Dang, Khiem Huynh, Phuc Nguyen Trong, Bang Le, Nam Tran Ba, Ngan Nguyen Thi Kim and Son Ha Xuan.** Enhancing Electoral Integrity: A Comprehensive Study of Blockchain-Enabled Voting on EVM Platforms
- **Xuran Ming, Shoubin Li, Mingyang Li and Lvlong He.** AutoLabel: Automated Textual Data Annotation Method based on Active Learning and Large Language Model
- **Haochen Liang, Yunwei Guo and Keke Gai.** KDTSS:A Blockchain-based Scheme for Knowledge Data Traceability and Secure Sharing
- **Shufen Fang.** Intellectual Property Protection in Federated Learning via Watermarking
- **Pengcheng Jiang, Ye Zhu, Yang Cao, Gang Li, Gang Liu and Bo Yang.** Robust Representation Learning for Image Clustering

Session E1:

- **Xiuxiu Cai, Yanhua Yu, Ang Ma, Yimeng Ren and Shuai Zhen.** Adversary and Attention Guided Knowledge Graph Reasoning based on Reinforcement Learning

- **Zizhuo Zhang, Lian Wen, Shaoyang Zhang, David Chen and Yanfei Jiang.** Evaluating GPT's Programming Capability through CodeWars' Katas
- **Jing Peng, Kaiyin Chao, Geying Chen and Jianfei Yin.** An Online Portfolio Selection Algorithm with Dynamic Coreset Construction
- **Qiansheng Zhang and Yuanjun Ou.** Interval-valued Fuzzy Portfolio decision Model with Transaction Cost and Liquidity Constraint
- **Chengli Xing, Tianxiang Hu, Ninglin Liao, Minghui Zhang, Dongdong Du, Yupeng Wu and Qin Gao.** Active Learning for Low-Resource Project-Specific Code Summarization

Session E2:

- **Deng Zhiqi and Xudong Luo.** A Survey of Game-Theoretic Methods for Controlling COVID-19
- **Shubin Cai, Honglong Chen, Youyi Huang, Zhong Ming.** ComPAT: A LLM Based Compiler Principles Course Assistant
- **Suman Suman, Essa Q. Shahra, Abdulrahman A.** Al-Sewari and Haitham Hassan Mahmoud. Tram Air Conditioning Fault Prediction Using Machine learning
- **Jie Liu, Jinfa Wang, Peipei Liu, Hongsong Zhu and Hong Li.** Lexicon Graph Adapter based BERT Model For Chinese Named Entity Recognition
- **Chengyu Song, Jingjing Zhang, Linru Ma, Xinxin Hu, Jianming Zheng and Lin Yang.** Insider Threat Defense Strategies: Survey and Knowledge Integration

Session E3:

- **Deng Zhiqi and Xudong Luo Kaiyin Chao, Jing Peng, Xiaomian Xiao, Jinglan Deng, Hanyu Yang and Jianfei Yin.** GA-MEPS: Multiple Experts Portfolio Selection Based on Genetic Algorithm
- **Feriel Gammoudi and Mohamed Nazih Omri.** Deep Learning and Machine Learning-Based Approaches to Inferring Social Media Network Users' Interests from a Missing Data Issue
- **Haitham Mahmoud and Taufiq Asyhari.** Customer Segmentation for Telecommunication using Machine Learning
- **Xingjian Xu, Fang Liu and Zhuang Lv.** Difficulty Prediction in Examination Questions through a Comprehensive Multi-Feature Attention Bi-Directional Recurrent Neural Network Framework
- **Honglei Zhang and Rong Yan.** An Interactive Transformer for Extracting Causal Relationship in Medical Text

Session E4:

- **Bo Shen, Qian Ma and Ru Wang.** Profit Maximization in Edge-enabled Multimedia Data Market: A Game-based Pricing Approach
- **Zhikuang Xin, Zhenghong Wu, Dong Zhu, Jue Wang and Yangang Wang.** Reinforcement learning for scientific application: A survey
- **Yussuf Ahmed, William Hunt, Haitham Mahmoud and Mohamed Ben Farah.** Zunna: A New Browser Extension for Protecting Personal Data
- **Huanzhou Yue and Xuren Wang.** HRTC: A Triple Joint Extraction Model Based on Cyber Threat Intelligence
- **Jiaqi Dai, Min Jiang, Fanzhen Liu and Ronghua Huang.** Personalized Image Aesthetics Assessment based on Theme and Personality

Session E5:

- **Chenfei Sun.** A Spatio-temporal Neural Network for Medical Insurance Fraud Detection
- **Lingjiao Xu, Xingyuan Chen, Bing Wang and Peng Jin.** Exploring language diversity to improve neural text generation
- **Xiangfu He, Qiyao Peng, Minglai Shao and Yueheng Sun.** Diffusion Review-based Recommendation
- **Weizhen Bian, Siyan Liu, Dezhi Chen and Yijie Liao.** IntellectSeeker: A Personalized Literature Management System with the Probabilistic Model and Large Language Model

Session E6:

- **Zihui Gong, Qiang Wang, Wenfeng He, Chuqing Cao, Liang Zheng and Yanwu Yu.** A novel network intrusion detection method for unbalanced data in open scenarios
- **Menglin Cui, Xiang Li and Peng Qin.** Explainable Knowledge-Based Learning For Online Medical Question Answering
- **Zhang Hu, Liu Hufeng, Zhang Youli, Guo Ying, Dai Hongjun, Shao Minghao and Xu Hongyu.** Energy consumption prediction method for refrigeration systems based on adversarial networks and Transformer networks
- **Wei Hu, Mingce Hu and Fang Liu.** P-Vit: A simplified Vision Transformer model based on FFN and Simple Attention

THE TRANSPORTATION

BHX INTERNATIONAL AIRPORT TO BCU – CURZON BUILDING

Train:

- **Step 1:** Take the free Air-Rail Link monorail from Birmingham Airport to Birmingham International Station.
- **Step 2:** From Birmingham International Station, take a direct train to Birmingham New Street Station. Trains run frequently, with a journey time of approximately 10-15 minutes.
- **Step 3:** Follow the directions from Birmingham New Street Station to BCU.



Bus:

- **Step 1:** Take the X1 or X2 bus from Birmingham Airport (Bus stop located outside Arrivals) to Birmingham City Centre.
- **Step 2:** Arrive at Birmingham Moor Street Station or Birmingham Coach Station.
- **Step 3:** Follow the directions from Birmingham Moor Street Station to BCU.



BIRMINGHAM NEW STREET STATION TO BCU

Walking Directions 10-15 minutes

- Exit onto Smallbrook Queensway.
- Walk to Holloway Circus, continue to Suffolk Street Queensway, and turn left onto University Locks.
- Follow signs to BCU.



BIRMINGHAM MOOR STREET STATION TO BCU

Walking Directions 10-15 minutes

- Exit onto Moor Street Queensway.
- Walk towards Millennium Point.
- Follow signs to BCU.



Taxi

- Uber/Bolt from New Street Station or Moor Street train station is a 5-minute journey costing £5 - £7

THE ATTRactions IN THE CITY

BIRMINGHAM MUSEUM AND ART GALLERY

**Chamberlain Square,
Birmingham, B3 3DH,
0121 348 8000**

- **Description:** Established in 1885, the Birmingham Museum and Art Gallery is a premier cultural institution located in the heart of the city. The museum houses a diverse collection of art and artifacts, ranging from ancient civilizations to modern art. Visitors can explore the extensive galleries featuring the world's largest collection of Pre-Raphaelite paintings, alongside fascinating exhibitions of ceramics, metalwork, and jewellery.
- **Highlights:** The museum's highlights include the Staffordshire Hoard, the largest collection of Anglo-Saxon gold ever found; a vibrant gallery dedicated to ancient Egypt; and a series of temporary exhibitions that change throughout the year.



THE LIBRARY OF BIRMINGHAM

**Centenary Square,
Broad Street, B1 2EA,
0121 242 4242**

- **Description:** Opened in 2013, the Library of Birmingham is a modern architectural masterpiece and one of the largest public libraries in Europe. The building's striking design includes a distinctive facade with interlocking metal rings, symbolizing the city's industrial heritage.
- **Highlights:** Inside, visitors can explore the vast book collections, visit the Shakespeare Memorial Room with its rare books and memorabilia, and take a free entry to enjoy panoramic views of the city from the rooftop gardens.





BRINDLEYPLACE - BIRMINGHAM CANALS

**Brindleyplace,
Birmingham B1 2JF,
0121 643 6866**

- **Description:** Birmingham's canals offer numerous scenic walking and cycling routes, allowing visitors to explore the city at a leisurely pace. BrindleyPlace is a vibrant, mixed-use development located alongside Birmingham's canals. It offers a lively atmosphere with a variety of restaurants, bars, shops, and cultural venues. The area is beautifully landscaped, with public squares and water features that make it a popular spot for both locals and visitors.
- **Highlights:** Key attractions include the National SEA LIFE Centre, Symphony Hall, and a range of dining options from casual eateries to fine dining restaurants. Regular events, such as outdoor concerts and markets, add to the charm of Brindley Place. Walking alongside the canals connects you to the premier shopping centre The Mailbox. Guided boat trips are also available, providing a unique perspective of the city from the water.



BULLRING & GRAND CENTRAL

**Bullring,
Birmingham B5 4BU,
0121 632 1526**

- **Description:** The Bullring & Grand Central is a major shopping destination in Birmingham, featuring over 200 shops, including high-street brands, designer stores, and independent boutiques. The iconic Selfridges building, with its futuristic design, is a landmark of the shopping center.
- **Highlights:** In addition to shopping, visitors can enjoy a wide range of dining options, from casual eateries to fine dining restaurants. Regular events and pop-up markets add to the vibrant atmosphere, making it a must-visit for shopping enthusiasts.



BIRMINGHAM BOTANICAL GARDENS

**Westbourne Road,
Edgbaston, Birmingham B15 3TR,
0121 454 1860**

- **Description:** Spread across 15 acres, the Birmingham Botanical Gardens are a lush oasis of green, featuring a diverse range of plant species from around the world. The gardens are divided into four glasshouses, each representing different climates: tropical, subtropical, Mediterranean, and arid.
- **Highlights:** Visitors can explore the seasonal outdoor gardens, a large lawn area perfect for picnics, a butterfly house, and a children's playground. The gardens also host events, educational workshops, and guided tours, making it a perfect destination for nature lovers and families



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