

International Joint Conference on Theoretical Computer
Science – Frontier of Algorithmic Wisdom 2023

IJTCS-FAW 2023

University of Macau, Macau SAR, China

August 14 - 18, 2023

<https://conferences.cis.um.edu.mo/ijtcs2023>

Organizer



澳門大學
UNIVERSIDADE DE MACAU
UNIVERSITY OF MACAU



科技學院
Faculdade de Ciências e Tecnologia
Faculty of Science and Technology



Co-organizer



北京大學 人工智能
研究院
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北京大學前沿計算研究中心
Center on Frontiers of Computing Studies, Peking University



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Preface

The International Joint Conference on Theoretical Computer Science – Frontiers of Algorithmic Wisdom (IJTCS-FAW 2023), which combined the 17th International Conference on Frontiers of Algorithmic Wisdom (FAW) and the 4th International Joint Conference on Theoretical Computer Science (IJTCS), was held in Macau, China, during August 14 - 18, 2023. For the first time in the past four years, the conference was run in a fully in-person mode. To accommodate the diversified new research directions in theoretical computer science, FAW and IJTCS joined their forces together to organize an event for information exchange of new findings and work of enduring value in the field. The conference had both contributed talks submitted to the three tracks in IJTCS-FAW 2023, namely,

- Track A: The 17th Conference on Frontiers of Algorithmic Wisdom,
- Track B: Blockchain Theory and Technology,
- Track C: Computational Economics and Algorithmic Game Theory,

and invited talks in focused tracks on Blockchain Theory; Multi-agent Learning, Multi-agent Systems, Multi-agent Games; Learning Theory; Quantum Computing; and Conscious AI. Furthermore, the CSIAM forum, Female Forum, Young PhD Forum, Undergraduate Forum, Young Faculty in TCS and the CCF Annual Conference on Computational Economics 2023 (CCF CE 2023) were also organized during the five-day event. For the three tracks that accepted submissions, the Program Committee, consisting of 45 top researchers from the field, reviewed 34 submissions and decided to accept 21 of them as full papers. These are presented in this proceedings volume. Each paper had three reviews. The review process was double blind and conducted entirely electronically via the EasyChair system. The conference papers included in the volume have taken the Springer Nature policies into account. Besides the regular talks, IJTCS-FAW 2023 had keynote talks from Kazuhisa Makino (Kyoto University), Xiaotie Deng (Peking University) and Jianwei Huang (Chinese University of Hong Kong, Shenzhen). We are very grateful to all the people who made this conference possible: the authors for submitting their papers, the Program Committee members, and the Track Chairs for their excellent work in coordinating the review process and inviting the speakers, and all the keynote speakers and invited speakers. We also thank the Advisory Committee and Steering Committee for providing the timely advice about running the conference. In particular, we would like to thank the Local Organization Committee members from the University of Macau and Peking University for providing organizational support. Finally, we would like to thank Springer for their encouragement and cooperation throughout the preparation of this conference.

August 2023

Minming Li
Xiaoming Sun
Xiaowei Wu

Committees

Advisor Committee

Wen Gao	Peking University
Hong Mei	CCF President
Pingwen Zhang	CSIAM President and Peking University

Steering Committee

Xiaotie Deng	Peking University
Jian Li	Tsinghua University
Pinyan Lu	Shanghai University of Finance and Economics
Jianwei Huang	Chinese University of Hong Kong Shenzhen
Lijun Zhang	Chinese Academy of Sciences

Conference Chair

John E. Hopcroft	Cornell University
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General Chair

Chengzhong Xu	University of Macau
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Program Committee Chairs

Minming Li	City University of Hong Kong
Xiaoming Sun	Chinese Academy of Sciences
Xiaowei Wu	University of Macau

Track A

Track Chairs

Zhiyi Huang	University of Hong Kong
Chihao Zhang	Shanghai Jiao Tong University

Program Committee Members

Xiaohui Bei	Nanyang Technological University
Xue Chen	University of Science and Technology of China
Donglei Du	University of New Brunswick
Shi Li	Nanjing University
Bingkai Lin	Nanjing University
Jingcheng Liu	Nanjing University
Shuai Shao	University of Science and Technology of China
Xiaorui Sun	Columbia University
Kuan Yang	Shanghai Jiao Tong University
Yang Yuan	Tsinghua University

Track B

Track Chairs

Jing Chen	Algorand
Xiaotie Deng	Peking University

Program Committee Members

Muhammed Esgin	Monash University
Bo Li	Hong Kong Polytechnic University
Luchuan Liu	BNU & HKBU United International College
Yi Sun	Chinese Academy of Science
Ye Wang	University of Macau
Jiayu Xu	Oregon State University
Yingjie Xue	Brown University

Track C

Track Chairs

Yukun Cheng	Suzhou University of Science and Technology
Zhengyang Liu	Beijing Institute of Technology
Biaoshuai Tao	Shanghai Jiao Tong University

Program Committee Members

Zhigang Cao	Beijing Jiaotong University
Xujin Chen	Chinese Academy of Sciences
Mingyu Guo	University of Adelaide
Chao Huang	University of California Davis
Yuqing Kong	Peking University
Moran Koren	Harvard University
Jinyan Liu	Beijing Institute of Technology
Shengxin Liu	Harbin Institute of Technology, Shen Zhen
Xinhang Lu	UNSW Sydney
Qi Qi	Renmin University of China
Changjun Wang	Chinese Academy of Sciences
Zihe Wang	Renmin University of China
Haoran Yu	Beijing Institute of Technology
Jie Zhang	University of Bath
Jinshan Zhang	Zhejiang University
Yong Zhang	CAS Shenzhen Institutes of Advanced Technology
Yuhao Zhang	Shanghai Jiao Tong University
Zhijie Zhang	Fuzhou University
Zhenzhe Zheng	Shanghai Jiao Tong University

Other Track Chairs

Track D (Learning Theory)

Jian Li Tsinghua University

Track E (Quantum Computing)

Xiaoming Sun Chinese Academy of Sciences

Jialin Zhang Chinese Academy of Sciences

Track G (Multi-agent Learning, Multi-agent System, Multi-agent Games)

Wenxin Li Peking University

Haifeng Zhang Chinese Academy of Sciences

Track H (Conscious AI)

Manuel Blum Carnegie Mellon University, Emeritus

Lenore Blum Carnegie Mellon University, Emeritus

Yurong Chen Peking University

Young Faculty in TCS

Shaofeng Jiang Peking University

Undergraduate Forum

Ying Wang Peking University

Young PhD Forum

Qiankun Zhang Huazhong University of Science and Technology

Female Forum

Jialin Zhang Chinese Academy of Sciences

CSIAM Forum

Jichen Li Peking University

Local Organizing Committee

Shuang Wu (co-chair) Peking University

Li Li (co-chair) University of Macau

Lavana Chang University of Macau

Sijia Dai University of Macau

Yilong Feng University of Macau

Alice Lam University of Macau

Chong Man Leong University of Macau

Haolong Li University of Macau

Huahua Miao University of Macau

Jiawei Qiu University of Macau

Cong Zhang University of Macau

Shengwei Zhou University of Macau

Program Overview

Sunday, August 13	
19:00 - 21:00	Registration (1 st Floor of N1)

Monday, August 14	
08:30 - 09:00	Opening Ceremony
09:00 - 09:45	Keynote Speech by Kazuhisa Makino (Chair: Zhiyi Huang)
09:45 - 10:00	Tea Break
10:00 - 12:30	Accepted Papers (Chair: Zhiyi Huang)
12:30 - 14:00	Lunch Break
14:00 - 15:45	Young PhD Forum (Chair: Qiankun Zhang)
15:45 - 16:00	Tea Break
16:00 - 18:30	Young Faculty in TCS (Chair: Shaofeng Jiang)

Tuesday, August 15	
09:00 - 09:45	Keynote Speech by Xiaotie Deng (Chair: Jing Chen)
09:45 - 10:00	Tea Break
10:00 - 10:50	Best Paper Awards (Chair: Jing Chen)
10:50 - 12:30	Track B Invited Talks (Chair: Jing Chen)

12:30 - 14:00	Lunch Break
14:00 - 15:45	Female Forum (Chair: Jialin Zhang)
15:45 - 16:00	Tea Break
16:00 - 16:50	Track E (Quantum Computing) (Chair: Xiaoming Sun)
17:00 - 18:20	Track H (Conscious AI) (Chair: Yurong Chen)
19:00 - 21:00	Business Meeting

Wednesday, August 16	
09:00 - 09:45	Keynote Speech by Jianwei Huang (Chair: Yukun Cheng)
09:45 - 10:00	Tea Break
10:00 - 12:30	Accepted Papers (Chair: Biaoshuai Tao)
12:30 - 14:00	Lunch Break
14:00 - 18:30	Macau Tour
18:30 - 20:30	Banquet Dinner

Thursday, August 17	
09:00 - 09:15	Opening Ceremony of CCF CE (Coordinator: Qi Qi)
09:15 - 09:45	Keynote Speech by Yinyu Ye (Chair: Xujin Chen)
09:45 - 10:30	Tea Break & Group Photo

10:30 - 11:00	Keynote Speech by Yaguang Zhang (Chair: Yukun Cheng)
11:00 - 11:30	Keynote Speech by Jikui Wang (Chair: Feng Wang)
11:30 - 12:30	CCF CE Session 1 (Chair: Bo Li)
12:30 - 14:00	Lunch Break
14:00 - 15:00	CCF CE Session 2 (Chair: Jing Chen)
15:00 - 15:30	Tea Break
15:30 - 16:30	CCF CE Session 3 (Chair: Bo Li)
16:30 - 17:30	CCF CE Session 4 (Chair: Zhihao Tang)

Friday, August 18	
08:55 - 09:45	CSIAM Forum (Chair: Jichen Li)
09:45 - 10:00	Tea Break
10:00 - 11:40	Undergraduate Forum (Chair: Ying Wang)
11:40 - 12:30	Track G (Multi-agent Learning) (Chair: Yurong Chen)
12:30 - 14:00	Lunch Break
14:00 - 15:30	Track D (Learning Theory) (Chair: Jian Li)
15:30 - 16:00	Tea Break
16:00 - 17:00	Closing Ceremony

Detailed Schedule

Speakers are highlighted in blue.

Monday, August 14	
Opening Ceremony (Coordinator: Xiaowei Wu)	
08:30 - 08:35	Speech by General Chair
08:35 - 08:50	Introduction of the Conference
08:50 - 09:00	Group Photo
Keynote Speech (Chair: Zhiyi Huang)	
09:00 - 09:45	Kazuhisa Makino <i>Optimal Composition Ordering for 1-Variable Functions</i>
09:45 - 10:00	Tea Break
Accepted Papers (Chair: Zhiyi Huang)	
10:00 - 10:15	Zhongzheng Tang, Jingwen Chen and Chenhao Wang <i>An Improved Analysis of the Greedy + Singleton Algorithm for k-Submodular Knapsack Maximization</i>
10:15 - 10:30	T-H. Hubert Chan, Enze Sun and Bo Wang <i>Generalized Sorting with Predictions Revisited</i>
10:30 - 10:45	Kameng Nip <i>On the NP-hardness of two scheduling problems under linear constraints</i>
10:45 - 11:00	Zhongzheng Tang, Haoyang Zou and Zhuo Diao <i>On the Matching Number of k-Uniform Connected Hypergraphs with Maximum Degree</i>
11:00 - 11:15	Yuying Li , Min Li, Yang Zhou and Qian Liu <i>Random Approximation Algorithms for Monotone k-Submodular Function Maximization with Size Constraints</i>
11:15 - 11:30	Zhixian Zhong <i>Additive Approximation Algorithms for Sliding Puzzle</i>
11:30 - 11:45	Suthee Ruangwises <i>Physically Verifying the First Nonzero Term in a Sequence: Physical ZKPs for ABC End View and Goishi Hiroi</i>
11:45 - 12:00	Sukanya Maji, Supantha Pandit and Sanjib Sadhu <i>Red-Blue Rectangular Annulus Cover Problem</i>
12:00 - 12:15	Guangwei Wu , Fu Zuo, Feng Shi and Jianxin Wang <i>Applying Johnson's Rule in Scheduling Multiple Parallel Two-Stage Flowshops</i>

12:30 - 14:00	Lunch Break
Young PhD Forum (Chair: Qiankun Zhang)	
14:00 - 14:25	Zhaohua Chen <i>Budget-Constrained Auctions with Unassured Priors: Strategic Equivalence and Structural Properties</i>
14:25 - 14:50	Yecheng Xue <i>Near-Optimal Quantum Coreset Construction Algorithms for Clustering.</i>
14:50 - 15:15	Zonghan Yang <i>Improved Algorithms for Online Rent Minimization Problem Under Unit-Size Jobs</i>
15:15 - 15:40	Shengwei Zhou <i>Weighted EF1 Allocations for Indivisible Chores</i>
15:45 - 16:00	Tea Break
Young Faculty in TCS (Chair: Shaofeng Jiang)	
16:00 - 16:25	Xue Chen <i>Sparse Fourier Transform in the continuous setting</i>
16:25 - 16:50	Yiding Feng <i>Mobility Data in Operations: The Facility Location Problem</i>
16:50 - 17:15	Lingxiao Huang <i>On optimal coresets for clustering in Euclidean spaces</i>
17:15 - 17:40	Shuai Shao <i>Weitz's algorithm revisited via Barvinok's polynomial interpolation method</i>
17:40 - 18:05	Yixin Tao <i>Approximating equilibrium under constrained piecewise linear concave utilities</i>
18:05 - 18:30	Hong Zhou <i>Spectral Sparsification, Spectral Rounding, and Matrix Discrepancy</i>

Tuesday (August 15)	
Keynote Speech (Chair: Jing Chen)	
09:00 - 09:45	Xiaotie Deng <i>Majority Game in Blockchain</i>
09:45 - 10:00	Tea Break
Best Papers and Invited Talks (Chair: Jing Chen)	
10:05 - 10:25	T-H. Hubert Chan, Zhihao Gavin Tang and Quan Xue <i>Max-Min Greedy Matching Problem: Hardness for the Adversary and Fractional Variant</i> (Best Paper Award)
10:30 - 10:50	Xiaolin Bu, Jiabin Song and Ziqi Yu <i>EFX Allocations Exist for Binary Valuations</i> (Best Student Paper Award)
10:50 - 11:15	Kani Chen <i>When Blockchain Meets AI ...</i>
11:15 - 11:40	James Zhibin Lei <i>Decentralized Technologies for Web3.0 Applications</i>
11:40 - 12:05	Yingjie Xue <i>Fault-tolerant and Expressive Cross-Chain Swaps</i>
12:05 - 12:30	Guomin Yang <i>Hierarchical Cryptographic Wallets: Techniques and Challenges</i>
12:30 - 14:00	Lunch Break
Female Forum (Chair: Jialin Zhang)	
14:00 - 14:25	Yurong Chen <i>Coordinated Dynamic Bidding in Repeated Second-Price Auctions with Budgets</i>
14:25 - 14:50	Xinyu Fu <i>Locally-iterative $(\Delta+1)$-Coloring in Sublinear (in Δ) Rounds</i>
14:50 - 15:15	Qun Hu <i>Stability of Decentralized Queueing Network — Beyond Bipartite Cases</i>
15:15 - 15:40	Fang Kong <i>Best-of-three-worlds Analysis for Linear Bandits with Follow-the-regularized-leader Algorithm</i>
15:45 - 16:00	Tea Break
Quantum Computing (Chair: Xiaoming Sun)	
16:00 - 16:25	Man-Hong Yung <i>Discussion on Quantum Computing Software</i>
16:25 - 16:50	Shengyu Zhang <i>Near-Future Quantum Computing: Advancements in Circuit Optimization</i>

Conscious AI (Chair: Yurong Chen)	
17:00 - 17:10	Lenore Blum, Manuel Blum, Yurong Chen <i>A Framework for a Conscious AI: A Short Introduction to Conscious Turing Machine</i>
17:10 - 17:30	Shaoyang Cui <i>A possible mechanism for CTM generating self-conscious</i>
17:30 - 17:50	Hengli Li <i>A Unified CTM Framework of Delusion</i>
17:50 - 18:10	Ningyuan Li <i>How does CTM learn knowledge and skills?</i>
18:10 - 18:30	Xingyu Liu, Xizhi Xiao <i>An Illustration of Causal Reasoning from a Conscious Turing Machine Perspective</i>
19:00 - 21:00	Business Meeting

Wednesday (August 16)	
Keynote Speech (Chair: Yukun Cheng)	
09:00 - 09:45	Jianwei Huang <i>Privacy-Aware Online Social Networking with Targeted Advertisements</i>
09:45 - 10:00	Tea Break
Accepted Papers (Chair: Biaoshuai Tao)	
10:00 - 10:15	Robin Fritsch, Youn Joo Lee, Adrian Meier, Ye Wang and Roger Wattenhofer <i>Understanding the Relationship Between Core Constraints and Core-Selecting Payment Rules in Combinatorial Auctions</i>
10:15 - 10:30	Yutong Wu, Ali Khodabakhsh, Bo Li , Evdokia Nikolova and Emmanouil Pountourakis <i>Eliciting Truthful Reports with Partial Signals in Repeated Games</i>
10:30 - 10:45	Tianhang Lu , Han Xiao and Qizhi Fang <i>Approximate Core Allocations for Edge Cover Games</i>
10:45 - 11:00	Yichen Tao, Shuo Wang and Kuan Yang <i>Adaptivity Gap for Influence Maximization with Linear Threshold Model on Trees</i>
11:00 - 11:15	Zhou Chen , Yiming Ding, Qi Qi and Lingfei Yu <i>Mechanism Design in Fair Sequencing</i>
11:15 - 11:30	Xiaolin Bu and Jiaxin Song <i>Maximize Egalitarian Welfare for Cake Cutting</i>
11:30 - 11:45	Tingwei Hu, Lili Mei and Zhen Wang <i>Stackelberg Strategies on Epidemic Containment Games</i>
11:45 - 12:00	Yukun Cheng , Zhanghao Yao and Xinxin Wang <i>Differential Game Analysis for Cooperation Models in Automotive Supply Chain under Low-Carbon Emission Reduction Policies</i>
12:00 - 12:15	Xiaoliang Wu , Qilong Feng, Jinhui Xu and Jianxin Wang <i>The Fair k-Center with Outliers Problem: FPT and Polynomial Approximations</i>
12:15 - 12:30	Lusheng Wang, Boting Yang and Zhaohui Zhan <i>Constrained Graph Searching on Trees</i>
12:30 - 14:00	Lunch Break
14:30 - 18:30	Macau Tour
18:30 - 20:30	Banquet Dinner

Thursday (August 17)	
Opening Ceremony of CCF CE 2023 (Coordinator: Qi Qi)	
09:00 - 09:05	Speech by Chengzhong Xu
09:05 - 09:10	Speech by Xiaotie Deng
Keynote Speech (Chair: Xujin Chen)	
09:15 - 09:45	Yinyu Ye <i>Online Equilibrium Pricing for Stochastic Fisher Markets</i>
09:45 - 10:30	Tea Break and Group Photo
Keynote Speech (Chair: Yukun Cheng)	
10:30 - 11:00	Yaguang Zhang <i>经济学的包容与排异：基于学科史的角度</i>
Keynote Speech (Chair: Feng Wang)	
11:00 - 11:30	Jikui Wang <i>产学研用融合-科技创新赋能城市数字经济</i>
Session 1 (Chair: Bo Li)	
11:30 - 11:50	Chong Liu <i>Human Capital, Innovation and Technology Absorption</i>
11:50 - 12:10	Xiaolong Li <i>数据要素驱动经济增长：人工智能与劳动力供给</i>
12:10 - 12:30	Qunfeng Wu <i>城乡连通、国内统一大市场与农业现代化转型</i>
12:30 - 14:00	Lunch Break
Session 2 (Chair: Jing Chen)	
14:00 - 14:20	Jianwei Huang <i>Machine Learning Model Trading with Information Asymmetry</i>
14:20 - 14:40	Qingwei Jin <i>Assortment Optimization under Logit-based Choice Model with Tree Structured</i>
14:40 - 15:00	Yurong Chen <i>Optimal Private Payoff Manipulation against Commitment in Extensive-form Games</i>
15:00 - 15:30	Tea Break

Session 3 (Chair: Bo Li)	
15:30 - 15:50	Yan Liu <i>金融部门动态股权网络研究</i>
15:50 - 16:10	Jianpo Xue <i>心理因素的测度方法与应用</i>
16:10 - 16:30	Rong Li <i>Rural-urban migration and the effects of government spending in developing countries</i>
Session 4 (Chair: Zhihao Tang)	
16:30 - 16:50	Bo Li <i>Fair allocation of indivisible chores with asymmetric agents</i>
16:50 - 17:10	Bing Luo <i>Incentive Mechanism Design for Unbiased Federated Learning</i>
17:10 - 17:30	Tao Lin <i>Private Data Manipulation in Sponsored Search Auctions</i>

Friday (August 18)	
CSIAM Forum (Chair: Jichen Li)	
08:55 - 09:20	Zhong Chen <i>Research on Data Integrity Protection Technologies for Off-chain Storage in Blockchain</i>
09:20 - 09:45	Ye Wang <i>Allocative Inefficiencies in Public Blockchains, MEV, and Private Transactions</i>
09:45 - 10:00	Tea Break
Undergraduate Forum (Chair: Ying Wang)	
10:00 - 10:20	Ying Wang <i>Sybil-Proof Diffusion Auction in Social Networks</i>
10:20 - 10:40	Mingwei Yang <i>Incentive Ratios for Fairly Allocating Indivisible Goods: Simple Mechanisms Prevail</i>
10:40 - 11:00	Binghui Li <i>Robust Generalization Requires Exponentially Large Models</i>
11:00 - 11:20	Dongchen Li <i>The Search-and-Mix Paradigm in Approximate Nash Equilibrium Algorithms</i>
11:20 - 11:40	Changrui Mu <i>Statistical Non-Interactive Zero-Knowledge Batch Verification: Enhancing Communication Complexity with Logarithmic Aggregation</i>
Multi-agent Learning (Chair: Yurong Chen)	
11:40 - 12:05	Weiran Shen <i>Revenue-Maximizing Mechanism in Bilateral Trade with Interdependent Valuations</i>
12:30 - 14:00	Lunch Break
Learning Theory (Chair: Jian Li)	
14:00 - 14:30	Yong Liu <i>Towards Understanding the Generalization of Graph Neural Networks</i>
14:30 - 15:00	Yang Yuan <i>On the Power of Foundation Models</i>
15:00 - 15:30	Jingzhao Zhang <i>Two Phases of Scaling Laws for Nearest Neighbor Classifiers</i>
15:30 - 16:00	Tea Break
16:00 - 17:00	Closing Ceremony (Coordinator: Xiaowei Wu)

Keynote Speeches

Optimal Composition Ordering for 1-Variable Functions

Monday, August 14, 09:00 - 09:45

Prof. Kazuhisa Makino

Kyoto University



Abstract: We outline the composition ordering problem of 1-variable functions, i.e., given n 1-variable functions, we construct a minimum composition ordering for them. We discuss applications and related problems for the problem as well as the current status of the complexity issue.

Biography: Prof. Kazuhisa Makino got his bachelor's degree and Ph.D. in Applied Mathematics and Physics from Kyoto University. He is currently a professor in the Research Institute for Mathematical Sciences in Kyoto University. Prof. Makino's research interests are in the areas of discrete mathematics, optimization and algorithm theory. In particular, he is interested in design and analysis of efficient algorithms for discrete optimization, and applications of those techniques to the areas of artificial intelligence, game theory, and data mining. He is the winner of the Awards for Science and Technology 2022, the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology. He has also won the ISAAC 2016 Best Paper Award, the AAAI-2002 Outstanding Paper Award, Discrete Applied Mathematics 2003 Editors' Choice Award, Discrete Applied Mathematics 1999 Editors' Choice Award, and the 18th Japan IBM science award.

Majority Game in Blockchain

Tuesday, August 15, 09:00 - 09:45

Prof. Xiaotie Deng

Peking University



Abstract: Majority Equilibrium has made its way in Economic Systems in its implementation of Bitcoin. Its economic stability or security has met a challenge in the Selfish mining attack by Ittay Eyal and Emin Gün Sirer. This talk is a presentation on the cognitive level view of the majority game, based on a recent joint work "Insightful Mining Equilibria" on WINE 2022, with Mengqian Zhang, Yuhao Li, Jichen Li, Chaozhe Kong.

Biography: Prof. Xiaotie Deng got his BSc from Tsinghua University, MSc from the Chinese Academy of Sciences, and Ph.D. from Stanford University. He is currently a chair professor at Peking University. He taught in the past at Shanghai Jiaotong University, the University of Liverpool, the City University of Hong Kong, and York University. Before that, he was an NSERC international fellow at Simon Fraser University. Deng's current research focuses on algorithmic game theory, with applications to the Internet and Blockchain Economics. He is an ACM fellow for his contribution to the interface of algorithms and game theory, an IEEE Fellow for computing in partial information and interactive environments, and a CSIAM Fellow for contributions to game theory and blockchain. He is a foreign member of Academia Europaea. He is one of the winners of the 2022 Test of Time Award of ACM SIGecom for settling the complexity of computing a Nash equilibrium.

Privacy-Aware Online Social Networking with Targeted

Advertisements

Wednesday, August 16, 09:00 - 09:45

Prof. Jianwei Huang

Chinese University of Hong Kong (Shenzhen)



Abstract: Users exhibit personal information online to enjoy social interactions. A social network provider (SNP) can exploit such information to enable targeted advertisement. However, the over-exploitation of user information would invade users' privacy and negatively impact users' social activeness. With a monopoly SNP, we will demonstrate that a properly controlled information exploitation policy may earn the SNP more revenue than full exploitation. We will further discuss how the service quality gap between two SNPs will affect their competition in the duopoly market.

Biography: Prof. Jianwei Huang is a Presidential Chair Professor and Associate Vice President of the Chinese University of Hong Kong, Shenzhen, and the Associate Director of Shenzhen Institute of Artificial Intelligence and Robotics for Society. He is the Editor-in-Chief of IEEE Transactions on Network Science and Engineering (TNSE), and was an Associate Editor-in-Chief of IEEE Open Journal of the Communications Society (OJ-COM). He received the Ph.D. degree in ECE from Northwestern University in 2005, and worked as a Postdoc Research Associate in Princeton University during 2005-2007. From 2007 until 2018, he was on the faculty of Department of Information Engineering, The Chinese University of Hong Kong. His research interests are in the area of network optimization, network economics, and network science, with applications in communication networks, energy networks, data markets, and crowd intelligence. He has published 320+ papers in leading international venues, with a Google Scholar citation of 16,000+ and an H-index of 65. He has been an IEEE Fellow, an IEEE ComSoc Distinguished Lecturer, a Clarivate Web of Science Highly Cited Researcher, and an Elsevier Most Cited Chinese Researcher.

Other Talk Information



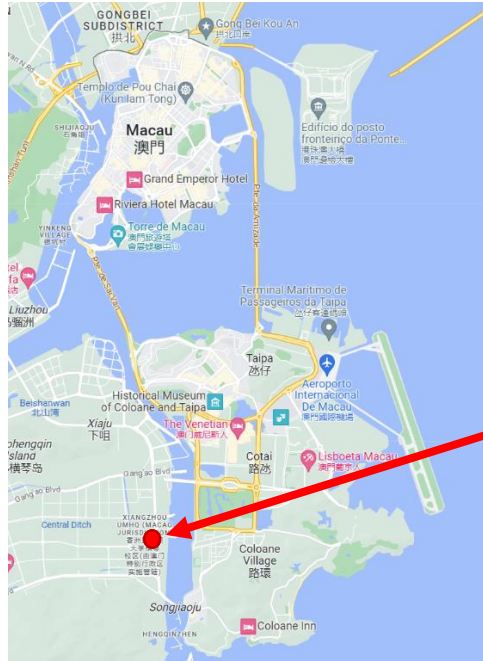
Accepted Papers



Invited Talks

Situation Map

Macau Map



University of Macau

UM Map

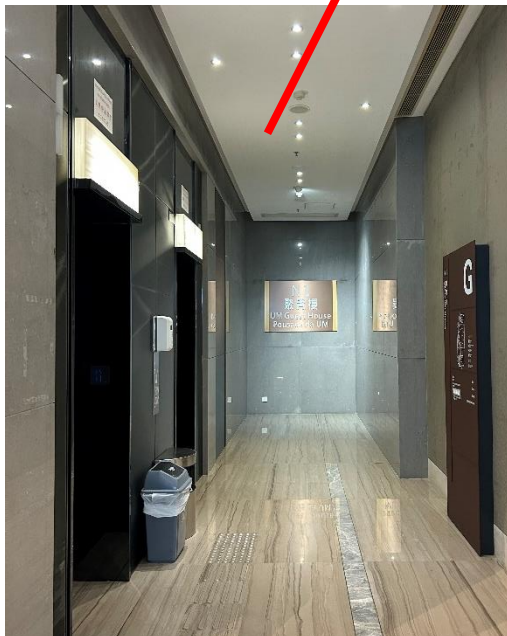


N1 Building

Venue: 1F

UM Guest House: 2F

Lobby of N1



Press "1" for

Conference Venue (1F)

Press "2" for

UM Guest House Check-in (2F)

Banquet Dinner

The IJTCS-FAW 2023 Banquet Dinner will take place at

Studio City (新濠影匯)

<https://www.studiocity-macau.com/tc>

on Wednesday 16th August from 18:30.

Address

Celebrity Tower 3/F, Ballroom II, Studio City

Estrada do Istmo, Cotai, Macau SAR



Navigation Hints

Getting to Macau

By Air

To get to Macau, you may be interested in taking a flight to one of the following airports.

- Macau International Airport (澳門國際機場)
- Hong Kong International Airport (HKIA): After arriving at HKIA, you can either purchase a ferry ticket from HKIA to Macau or take the Hong Kong-Zhuhai-Macau-Bridge (HZMB) bus (金巴).
- Zhuhai Jinwan Airport (金灣機場): After arriving at Zhuhai Airport, you need to arrive in Macau by land.

By Water

- Hong Kong Macau Ferry Terminal (港澳客輪碼頭，上環)
↔ Macau Taipa Ferry Terminal (氹仔碼頭)
- HKIA ↔ Macau Taipa Ferry Terminal

By Land

From Zhuhai, Guangdong:

There are two main gateways from Zhuhai to Macau:

- The Gongbei Port (拱北口岸) and the Hengqin Port (橫琴口岸)

From Hong Kong:

Visitors from Hong Kong can also take Hong Kong-Zhuhai-Macau-Bridge (HZMB) bus to Macau (HZMB Frontier Post at Macau Port).

Getting to N1 Building, University of Macau

By Taxi

- From Gongbei Port: 15 km, 25 min, 140 MOP (approximate).
- From Hengqin Port: 8 km, 15 min, 90 MOP (approximate).
- From HZMB Macau Port: 16 km, 30 min, 150 MOP (approximate).
- From Macau Taipa Ferry Terminal: 7.8 km, 15 min, 80 MOP (approximate).

Waiting and luggage will be charged additionally.

You are recommended to prepare some cash for taxi (100 MOP ≈ 90 RMB).

If you do not have cash, you can also pay with WeChat/Alipay but the currency rate will be 1:1:1 for RMB:HKD:MOP.

By Bus

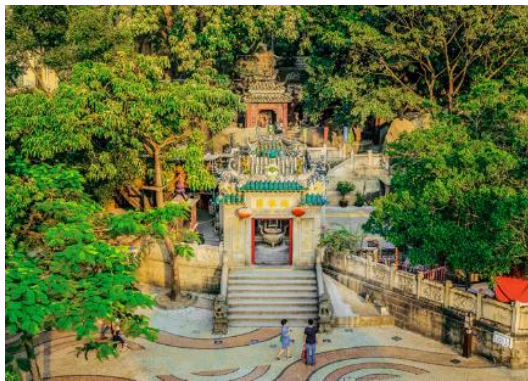
- From Gongbei Port
Take [51A](#) or [AP1](#) to [AV. 1º DE MAIO](#) and transfer to [73](#) or [73S](#) at the same stop to [UM / UNIVERSITY HALL](#).
- From Hengqin Port
Take [102X](#) to [ROTUNDA MARGINAL/ EST. DO DIQUE OESTE](#) and transfer to [71S](#), [71](#), [72](#), [73](#), or [73S](#) at [ROTUNDA MARGINAL / ZONAS ECOLÓGICAS](#) (across the road) to [UM / UNIVERSITY HALL](#).
- From HZMB Macau Port
Take [102X](#) to [ROTUNDA MARGINAL / ZONAS ECOLÓGICAS](#) and transfer to [71S](#), [71](#), [72](#), [73](#), or [73S](#) at the same stop to [UM / UNIVERSITY HALL](#).
- From Macau Taipa Ferry Terminal
Take [73S](#) to [UM / UNIVERSITY HALL](#).

The price per trip is 6.00 MOP. Download app “[巴士報站](#)” or search “[巴士報站](#)” on Wechat to check bus routes and real-time locations.

Things to do in Macau

Macau is a stunning tourist destination where East meets West. If you're attending IJTCS-FAW 2023 sessions during the day, you may want to take advantage of Macau's many free sights in the evening. With a variety of options available, there's something for everyone to enjoy.

Follow "澳門特區旅遊局" on WeChat to learn more about Macau tourism and create your own personalized itinerary!



A-Ma Temple

媽閣廟

Ruins of St. Paul's

大三巴牌坊



Senado Square

議事亭前地



