

Report by SIG on Wireless Blockchain Networks

Chairs:

Zehui Xiong (Singapore University of Technology and Design)

Salil Kanhere (The University of New South Wales)

Bin Cao (Beijing University of Posts and Telecommunications)

Jiawen Kang (Guangdong University of Technology)

Scope of WBN SIG

- How to use blockchain to facilitate the communication and network functions, trading, sharing and optimization for 5G/6G especially for cognitive radio (i.e., blockchain for new communication scenarios including wireless metaverses)
- How communication plays a role in blockchain and optimize blockchain performance (i.e., communication for blockchain consensus optimization)

Team

■ Chairs

Zehui Xiong, Singapore University of Technology and Design, Singapore
Salil Kanhere, The University of New South Wales, Australia
Bin Cao, Beijing University of Posts and Telecommunications, China
Jiawen Kang, Guangdong University of Technology, China

Senior Advisors

Yue Gao, University of Surrey, UK
Chonggang Wang, Interdigital, US
Tony Q. S. Quek, Singapore University of Technology and Design, Singapore
Mugen Peng, Beijing University of Posts and Telecommunications, China
Dusit Niyato, Nanyang Technological University, Singapore
Lei Zhang, University of Glasgow, UK

■ Founding Members

Lei Zhang, University of Glasgow, UK
Yue Gao, University of Surrey, UK
Salil Kanhere, The University of New South Wales, Australia
Bin Cao, Beijing University of Posts and Telecommunications, China
Jaafar M. H. Elmirghani, University of Leeds, UK
Hamed Ahmadi, University of York, UK
Alexander Okon, University of Canberra, Australia
Mugen Peng, Beijing University of Posts and Telecommunications, China
Choo Raymond, University of Texas at San Antonio
Shengli Zhang, Shenzhen University, China
Xavier Bellekens, University of Strathclyde, UK
Kumudu Munasinghe, University of Canberra, Australia
Mohamed Ben Farah, University of Strathclyde, UK

Thakur, Subhasis, National University of Ireland, Ireland
Nima Afraz, Trinity College Dublin, Ireland
Oluwakayode Onireti, University of Glasgow, UK
Yue Cao, WuHan University, China
Yao Sun, University of Glasgow, UK
Zhengguo Sheng, University of Sussex, UK
Paulo Valente Klaine, University of Glasgow, UK
Zehui Xiong, Singapore University of Technology and Design, Singapore
Dusit Niyato, Nanyang Technological University, Singapore
Jun Zhao, Nanyang Technological University, Singapore
Yang Zhang, Wuhan University of Technology, China
Huawei Huang, Sun Yat-Sen University, China
Jiawen Kang, Nanyang Technological University, Singapore
Wei Cai, The Chinese University of Hong Kong, Shenzhen, China
Kun Zhu, Nanjing University of Aeronautics and Astronautics, China
Yuan Wu, University of Macau, China
Jiangtian Nie, Nanyang Technological University, Singapore
Yuan Liu, Northeastern University, China
Hong-Ning Dai, Macau University of Science and Technology, China
Xintong Ling, Southeast University, China
Qin Hu, Indiana University–Purdue University Indianapolis, USA
Zhenni Li, Guangdong University of Technology, China
Ali Dorri, Queensland University of Technology, Australia
Dedeoglu Volkan, CSIRO Data61, Australia
Sidra Malik, The University of New South Wales, Australia
Hao Xu, University of Glasgow, UK
And more ...

Activities

1. **Personal Award:** 2022 Fellow of the Academy of Engineering Singapore: [Tony Q.S. Quek](#)
2. **Personal Award:** Highly Cited Researcher, Clarivate, 2023: [Zehui Xiong](#)
3. **Personal Award:** IEEE Technical Committee on Services Computing (TCSVC) Rising Star Award, IEEE Computer Society (IEEE CS), 2023 : [Zehui Xiong](#)
4. **Personal Award:** Forbes Asia 30 under 30, Class of 2023: [Zehui Xiong](#)
5. **Personal Award:** AI-2000 Artificial Intelligence World's Most Influential Scholar, 2023: [Jiawen Kang](#)
6. **Personal Award:** World Ranking of Top 2% Scientists, 2023: [Huawei Huang](#)
7. **Personal Award:** IEEE Systems Council's Hyper-Intelligence Technical Committee (HITC) Award 2022: [Kim-Kwang Raymond Choo](#)
8. **Personal Award:** IEEE Systems, Man, and Cybernetics (SMC) Technical Committee on Homeland Security (TCHS) Research and Innovation Award 2022: [Kim-Kwang Raymond Choo](#)
9. **Personal Award:** Highly Cited Researcher, Clarivate, 2023: [Kim-Kwang Raymond Choo](#)
10. **Personal Award:** Top-100 New Star in AI 2000 Scholar by AMiner, 2023: [Hongning Dai](#)
11. **Personal Award:** World Ranking of Top 2% Scientists, 2023: [Zhen Gao](#)
12. **Personal Award:** Elsevier 2022 MOST Cited Chinese Researchers, 2022: [Zhen Gao](#)

Activities

13. **Paper Award:** “Blockchain-based federated learning for industrial metaverses: Incentive scheme with optimal aoi”, Best Paper Award, IEEE International Conference on Blockchain, 2022 (Authors: [Jiawen Kang](#), [Zehui Xiong](#), [Jiangtian Nie](#), [Dusit Niyato](#))
14. **Paper Award:** “Blockchain-Enabled Wireless Internet of Things: Performance Analysis and Optimal Communication Node Deployment”, IEEE Internet of Things Journal, Best Paper Award, 2022 (Authors: [Yao Sun](#), [Lei Zhang](#), [Bin Cao](#))
15. **Paper Award:** “Enhancing the Efficiency of UAV Swarms Communication in 5G Networks through a Hybrid Split and Federated Learning Approach”, IEEE International Wireless Communications and Mobile Computing Conference (IWCMC), 2023 (Authors: [Zehui Xiong](#), [Jiawen Kang](#))
16. **Paper Award:** “Multiple-Agent Deep Reinforcement Learning for Avatar Migration in Vehicular Metaverses” ACM Web Conference (WWW) Workshop on Deep Learning for the Web of Things, 2023 (Authors: [Zehui Xiong](#), [Jiawen Kang](#))
17. **Paper Award:** EAI International Conference on Future Access Enablers of Ubiquitous and Intelligent Infrastructures (Authors: [Kim-Kwang Raymond Choo](#))
18. **Paper Award:** IEEE International Conference on Communication Technology, 2023 (Authors: [Zhen Gao](#))

Activities

19. **Edited Book:** by Springer, “Integrating Edge Intelligence and Blockchain: What, Why, and How”, 2023 (Editors: [Zehui Xiong](#), [Dusit Niyato](#))
20. **Edited Book:** by Springer, “From Blockchain to Web3 & Metaverse”, 2023 (Editors: [Huawei Huang](#))
21. **Edited Book:** by Springer, “Blockchain Scalability”, 2023 (Editors: [Huawei Huang](#))
22. **Edited Book Chapter:** by Springer International Publishing, “Blockchain for Trust and Reputation Management in Cyber-Physical Systems”, 2022 (Author: [Salil Kanhere](#))
23. **Edited Book Chapter:** by Springer International Publishing, “Blockchain in Supply Chain: Opportunities and Design Considerations”, in Springer Optimization and Its Applications, Springer International Publishing, pp. 541 – 576, 2022 (Author: [Salil Kanhere](#))
24. **Edited Book Chapter:** by Springer International Publishing, “Massive IoT Access for 6G”, 2023(Author: [Zhen Gao](#))
25. **Edited Book Chapter:** by Springer International Publishing, “Realizing the Metaverse: A Communications and Networking Perspective”, 2023(Author: [Zehui Xiong](#))
26. **Special Issue:** IEEE Communications Magazine, Special Issue on “Web 3.0” deadline August 2022, (Guest Editor: [Bin Cao](#))
27. **Special Issue:** IEEE Transactions on Network and Service Management, Special Issue on “Recent Advances on Blockchain for Network and Service Management” deadline May 2022, (Guest Editor: [Salil Kanhere](#))
28. **Special Issue:** IEEE Journal of Biomedical and Health Informatics, Special Issue on “Metaverse for Healthcare Trends, Challenges, and Solutions” (Guest Editor: [Zehui Xiong](#))

Activities

29. **Special Issue:** Frontiers of Computer Science, Special Issue on “Next Generation Blockchain: Theories, Algorithms and Applications” (Guest Editor: [Lei Zhang](#), [Yue Gao](#), [Zehui Xiong](#), [Jiawen Kang](#), [Paulo Valente Klaine](#))
30. **Special Issue:** IEEE Open Journal of the Computer Society Special Section on “Fusing Blockchain and AI with Metaverse: Technologies, Trends, and Applications”, deadline April 2023, (Guest Editor: [Huawei Huang](#), [Zehui Xiong](#), [Jiawen Kang](#))
31. **Editorial broad:** IEEE Transactions on Network Science and Engineering (Associate Editor: [Lei Zhang](#))
32. **Editorial broad:** The Journal of Blockchains (ISSN 2813-5288), 2023 (Member: [Huawei Huang](#))
33. **Editorial broad:** The ELSP Journal Blockchain (ISSN 2959-1260), 2023 (Youth Member: [Huawei Huang](#))
34. **Editorial broad:** the Ad Hoc Networks Journal (Editor in Chief: [Salil Kanhere](#))
35. **Editorial broad:** IEEE Transactions On Network and Service Management (Associate Editor: [Salil Kanhere](#))
36. **Workshop Organizing:** IEEE International Conference on Communications (ICC), 2nd Workshop on “Scalable, Secure and Intelligent Blockchain for Future Networking and Communications”, 2022 [Organizing/Program Co-Chair: [Lei Zhang](#), [Zehui Xiong](#), [Huawei Huang](#), [Jiawen Kang](#), [Bin Cao](#), [Jiangtian Nie](#), [Qin Hu](#), [Hong-Ning Dai](#)]
37. **Conference Organizing:** The Fourth International Conference on Blockchain Computing and Applications, 2022 (Steering Committee: [Salil Kanhere](#))
38. **Conference Organizing:** International Conference on Computing, Networking and Communications. (Symposium Co-Chairs: [Bin Cao](#))
39. **Conference Organizing:** IEEE International Conference on Sustainable Computing and Communications (SustainCom), 2023 (General Co-Chair: [Zehui Xiong](#), [Jiawen Kang](#), [Yang Zhang](#))
40. **Conference Organizing:** IEEE International Conference on Internet of Things (iThings), 2023 (Program Co-Chair : [Zehui Xiong](#), [Jiawen Kang](#), [Yang Zhang](#))

Activities

41. **Conference Organizing:** IEEE Global Communications Conference (GLOBECOM), 2023 (Symposium/Track Co-Chair: [Zehui Xiong](#))
42. **Conference Organizing:** IEEE International Conference on Computing, Networking and Communications (ICNC), 2023 (Symposium/Track Co-Chair: [Zehui Xiong](#))
43. **Conference Organizing:** IEEE International Conference on Wireless Communications and Signal Processing (WCSP), 2023 (Symposium/Track Co-Chair: [Zehui Xiong](#))
44. **Conference Organizing:** IEEE International Conference on Communication Technology (ICCT), 2023 (Symposium/Track Co-Chair: [Zehui Xiong](#))
45. **Conference Organizing:** International Conference on Metaverse Computing, Networking and Applications (MetaCom), 2023 (Track Co-Chair: [Zehui Xiong](#))
46. **Conference Organizing:** Cognitive Radio and AI-Enabled Networks Symposium (CREAN), IEEE ICC 2023 (Co-Chair: Lei Zhang)
47. **Conference Organizing:** IEEE SERVICES 2023 (Co-Chair: [Huawei Huang](#))
48. **Conference Organizing:** IEEE MetaCom 2023 (Co-Chair: [Bin Cao](#))
49. **Keynote:** 2023 Data Science and Analytics Webinar, Web3 Metaverse: A User's Perspective, 2023 (Speaker: [Wei Cai](#))
50. **Keynote:** 2023 3rd International Conference on Neural Networks, Information and Communication Engineering (Speaker: [Jiawen Kang](#))
51. **Keynote:** The forum of Web3 at CNCC 2023, City Shenyang. (Speaker: [Huawei Huang](#))
52. **Keynote:** Internet of Things (IoT) cyber security and threat intelligence: What are the research challenges and opportunities?. EAI Chinacom 2023. (Speaker: [Kim-Kwang Raymond Choo](#))

Activities

53. **Keynote:** The International Symposium on Challenges and Threats in Cybersecurity (ISCTC 2023) (Speaker: [Kim-Kwang Raymond Choo](#))
54. **Keynote:** The International Conference on Network and System Security (NSS 2022) (Speaker: [Kim-Kwang Raymond Choo](#))
55. **Keynote:** The 2nd International Workshop on Social and Metaverse Computing and Networking In conjunction with IEEE ICDCS'23 (Speaker: [Jiawen Kang](#))
56. **Keynote:** The 21st International Symposium on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks. (Speaker: [Zehui Xiong](#))
57. **Keynote:** IEEE International Conference on Metaverse Computing, Networking and Applications (Speaker: [Zehui Xiong](#))
58. **Keynote:** IEEE 22nd International Conference on Communication Technology (Invited Speaker: [Jiawen Kang](#))
59. **Tutorial:** Tutorial on “Blockchain and for Cyber-physical System”, IEEE Globecom (IEEE Communication Society flagship conference), 2022 ([Lei Zhang](#))
60. **Tutorial:** The 2023 IEEE International Conference on Blockchain and Cryptocurrency (ICBC), “Self-Sovereignty and Decentralisation in Digital Identity Management: Opportunities and Challenges?” ([Salil Kanhere](#))
61. **Tutorial Chairs:** "Towards Edge Intelligence for the Metaverse: A Tutorial", IEEE ICC, 2023 ([Zehui Xiong](#))
62. **Tutorial Chairs:** "Developing the Metaverse with Edge Intelligence: A Tutorial", IEEE GLOBECOM, 2023 ([Zehui Xiong](#))

Thank you for your attention!

For any further information or if you are interested in joining the SIG,
please contact kavinkang@gdut.edu.cn

LinkedIn website: <https://www.linkedin.com/groups/12537007/>

Email list: wirelessblockchain@comsoc.org

<https://cn.committees.comsoc.org/special-interest-groups-sigs/sig-on-wireless-blockchain-networks/>