Ran WANG

Address No. 30, Xueyuan Rd.

Haidian Dist., Beijing (China)

Birth 23 April 1991

Beijing (Chinese)

WeChat elephone

Telephone E-mail Citizenship destinyranran423 +86 152-1084-9006

wang ran @xs. ustb. edu. cn

Chinese

Education

Sept 2022 — Now Doctor of Philosophy (PhD) • University of Science & Technology Beijing

Supervisor: Prof. Xiaotong Zhang and Cheng Xu

Research topic: Blockchain-Enabled Distributed System Management, mainly including the application of blockchain technology in distributed

swarm intelligence systems and scientific big-data management.

Aug 2013 — Jan 2016 Master of Science (MSc) · University of Science & Technology Beijing

Supervisor: Prof. Qin Wang

Thesis: Collaborative localization in multi-agent systems based on Time-of-

Arrival.

Sept 2009 — July 2013 Bachelor of Science (BSc) • Beijing Information Science & Technology

University

Major: Information Security

Thesis: Design and implementation of automatic PC-unlock software based

on Bluetooth.

Employment

June 2018 — August

2022

Assistant Research Fellow • China Academy of Information and Commu-

nication Technology

My research focuses on big data and data security governance, including

blockchain and privacy computing.

March 2016 — June

2018

Assistant Research Fellow • Third Research Institute of the Ministry of

Public Security of PRC

My work focuses on the information security risk assessment of distributed systems. I am also responsible for the testing and evaluation of classified protection of information systems, as well as network security product test-

ing.

Awards

Feb 2023 Outstanding Award • China Computer Federation (CCF)

Our project, MatFed, in which I am the team leader, was awarded the outstanding award by the CCF Blockchain Committee in the Innovative Application Competition. Our work introduces blockchain into material big-data systems, enabling efficient collaboration between different research and development institutions to accelerate new material research using machine learning methods.

earning metrious.

Research Topics

Intelligent Computing

Blockchain-Enabled Distributed System Management • June 2018 - Now

- Blockchain-Enabled Swarm Robotics: Blockchain technology is used to achieve consensus on tasks in distributed systems, as well as audit and traceability throughout the system's operation.
- Blockchain-Enabled Scientific Big-data Management: A heterogeneous data storage system based on MongoDB and blockchain is being investigated to solve the problem of data storage, computing, and management in heterogeneous multi-agent systems, which could also be applied to scientific big-data management, such as intelligent manufacturing of materials.

Internet of Things

Colloborative Localization & Navigation • Sept 2016 — Now

Multi-source fusion navigation using statistical inference, belief propagation, and deep learning methods. RFID (CSS/UWB) based wireless localization techniques, including error modeling, protocol, and algorithm investigation.

Research Fundings (Principal participant)

Jan 2022 — Dec 2024

Research on collaborative searching model and key algorithms for emergency rescue in uncertain environment

National Science Foundation of China (NSFC)

Jan 2023 — Dec 2025

Research on blockchain enabled confidential computing for data privacy protection

• Natural Science Foundation of Shandong Province

Refereed Journal Publications

- **J10** Wang R, Xu C*, Tang S, Zheng R, Zhang X*. MatFed: MatFed: Federated Transfer Learning Driven Materials Computation for Secure Big Data Sharing[J], submitted to **Nature Communications**, under review.
- **J9** Wang R, Xu C*, Zhang X*. Toward Materials Genome Big-Data: A Blockchain-based Secure-Storage and Efficient-Retrieval Method[J], submitted to IEEE Transactions on Parallel and Distributed Systems, *Major revisioned, under review.*
- **Wang R**, Xu C*, Ye F, Tang S, Zhang X*. S-MBDA: A Blockchain-based Architecture for Secure Storage and Sharing of Material Big-Data[J], submitted to **IEEE Internet of Things Journal**, *Major revisioned*, *under review*.
- Ye F, Wang R*, Tang S, Duan S, Xu C. Federated Learning-Enabled Cooperative Localization in Multi-agent System[J]. International Journal of Wireless Information Networks, accepted.
- **Wang R**, Xu C*, Li R, Duan S, Zhang X. Cooperative Localization and Mapping based on UWB/IMU Fusion using Factor Graphs[J]. **IEEE Sensors Journal**, 2023: 1–1. (online)
- **Wang R**, Xu C*, Wu H, Shi Y, Duan S, Zhang X. Gaussian Condensation Filter Based on Cooperative Constrained Particle Flow[J]. **IEEE Internet of Things Journal**, 2023, 10(15): 13533–13543.
- Wan J, Xu C*, Chen W, Wang R, Zhang X*. Abrupt moving target tracking based on quantum enhanced particle filter[J]. ISA Transactions, 2023: S001905782300068X.

- **Vang R**, Xu C*, Dong R, Luo Z, Zheng R, Zhang X*. A secured big-data sharing platform for materials genome engineering: State-of-the-art, challenges and architecture[J]. **Future Generation Computer Systems**, 2023, 142: 59–74.
- Duan S, He H, Xu C*, Yin N, **Wang R**. DS-MCTS: A Deep Sequential Monte Carlo Tree Search Method for Source Navigation in Unknown Environments[J]. **Acta Electronica Sinica**, 2022: 1744–1752.
- Xu C*, Yin N, Duan S, He Hao, **Wang R**. Reward-Filtering-Based credit assignment for Multi-Agent Deep Reinforcement Learning[J]. Chinese Journal of Computers, 2022, 45(11): 2306–2320