

YINFENG CAO

Birth Year: 1999 ◇ cyfo107@icloud.com ◇ WeChat: Sliverwind99

Employment

HKCT Institute of Higher Education
Assistant Professor

Sep 2026 – Present

HKCT Institute of Higher Education
Lecturer

Nov 2025 – Aug 2026

The Hong Kong Polytechnic University
Postdoctoral Fellow (part-time)

Oct 2025 – Present

Education

The Hong Kong Polytechnic University (QS World University Rankings 2025: 57), Hong Kong SAR, China 2020 – 2025

Ph.D. in Computing Supervisor: **Prof. Jiannong Cao, IEEE Fellow, Member of the European Academy of Sciences, Vice President of The Hong Kong Polytechnic University**

Kanazawa University, Japan
Visiting Student

2024 – 2025

Supervisor: **Prof. Ruidong Li**

Xidian University (Project 211), China

2016 – 2020

B.Eng. in Information Security (Experimental Class in Cybersecurity)

Research Interests

Digital Twin Blockchain
Edge Computing

Publications (*Corresponding Author)

- (C15) Xiaofeng Zheng, Yong Ding, **Yinfeng Cao**, Tongrui Zuo, Wenxiang Song, Kai Shao, and Peng Chen. (2026). "Secure and Privacy-Preserving Traffic Large Models Based on Blockchain." *International Workshop on Blockchain and Web3 for Education, Research, and Science (BERS), International Conference on Artificial Intelligence for Health and Education (ICAIHE 2026)*.
- (C14) Huiyu Bao, Changze Zheng, Yuwei Ji, and **Yinfeng Cao**. (2026). "Secure Load Data Interaction and Collaborative Forecasting for Smart Campus Energy Management." *International Workshop on Blockchain and Web3 for Education, Research, and Science (BERS), International Conference on Artificial Intelligence for Health and Education (ICAIHE 2026)*.
- (C13) Song Wu, Bo Wang, Yifan Zhang, **Yinfeng Cao***, and Xueqiang Wang. (2026) "When Ad Networks Misbehave: Understanding Risks of Semi-Drive-By Splash Ads." *ACM SIGSAC Conference on Computer and Communications Security (CCS 2026)*. Accepted. **Preprint**.
- (J5) Zhiyuan Hu, Jiannong Cao, Zhaorui Zhang, **Yinfeng Cao**, and Lei Yang. (2026) "On-Demand Snapshot Migration: Accelerating Container Migration in Low-Bandwidth Networks." *IEEE Transactions on Mobile Computing*. Accepted. DOI: [10.1109/TMC.2026.3720463](https://doi.org/10.1109/TMC.2026.3720463).
- (C12) Mau Lam Lo, Xin Yu Huo, and **Yin Feng Cao**. (2026) "A Prototype for PDF Documents Integrity Verification Using Chinese National Cryptographic Algorithms and Hardware Isolation." *International Workshop on Efficient, Sustainable, and Trustworthy Network Intelligence (ESTNI), IEEE FINE 2026*. Accepted workshop paper.
- (C11) Baoxia Du, Ruidong Li, Yinfeng Cao, Dusit Niyato. (2026) "KV-SC: KV-Based Semantic Collaboration for Distributed Embodied Intelligence Networks." Accepted by Embodied Intelligence Networks (EIN 2026).
- (C10) Kaile Wang, Jiannong Cao, Yu Yang, Xiaoyin Li and **Yinfeng Cao***, "FedCCA: Client-Centric Adaptation against Data Heterogeneity in Federated Learning on IoT Devices". IEEE Annual Congress on Artificial Intelligence of Things (IEEE AIoT 2025).
- (C9) Yiwei Li, Jiannong Cao, Penghui Ruan, Divya Saxena, Songye Zhu and **Yinfeng Cao***. (2025) "Geometry-Consistent 4D Gaussian Splatting for Sparse-Input Dynamic View Synthesis". IEEE Annual Congress on Artificial Intelligence of Things (IEEE AIoT 2025).

9. (C8) Jingwen Liang, Jiannong Cao, Bo Yang, Dongbin Bai, Hongbo Liu, **Yinfeng Cao*** (2025) Decentralized Physical Infrastructure Networks: Backgrounds, Architectures, Open Issues, and Case Studies. *IEEE Blockchain* 2025.
10. (C7) Hongbo Liu, Jiannong Cao, Bo Yang, Dongbin Bai, **Yinfeng Cao***, Xiaoming Shen, Yinan Zhang, Jingwen Liang, Shan Jiang, Mingjin Zhang. (2025) "PolyLink: A Blockchain Based Decentralized Edge AI Platform For LLM Inference". *IEEE Blockchain* 2025.
11. (C6) Toshiki Takakubo, **Yinfeng Cao**, Ruidong Li, Jiannong Cao. (2025) "UnionChain: A Graph-based Shard Partitioning for Scalable Smart Contract Execution". *3rd IEEE International Conference on Metaverse Computing, Networking and Applications (IEEE MetaCom 2025)*.
12. (J4) Hongbo Liu, Jiannong Cao, **Yinfeng Cao***, Dongbin Bai, Jinwen Liang, Ruidong Li. (2025) "EdenDID: An Edge Computing and Blockchain-based Decentralized Identity System for Web3 Applications and DePIN". *Cluster Computing*. **SCI JCR Q1**.
13. (J3) **Yinfeng Cao**, Jiannong Cao, Baoxia Du, Dongbin Bai, Mingjin Zhang, and Ruidong Li*. (2025) "Chain-Twin: Blockchain-based Trustless Digital Twin Generation and Cross-Domain Adoption". *IEEE Transactions on Network Science and Engineering*. **SCI JCR Q1**.
14. (J2) **Yinfeng Cao**, Jiannong Cao, Baoxia Du, and Ruidong Li* (2025). "Decentralized Digital Twin Network". *IEEE Communications Magazine*. **SCI JCR Q1**.
15. (C5) **Yinfeng Cao**, Jiannong Cao, Dongbin Bai, Long Wen*, Yang Liu, and Ruidong Li* (2025). "MAP the Blockchain World: A Trustless and Scalable Blockchain Interoperability Protocol for Cross-chain Applications". *The ACM Web Conference 2025 (WWW 2025)* Sydney, Australia. **CCF-A, Top Conference**.
16. (C4) **Yinfeng Cao**, Jiannong Cao, Hongbo Liu, Zeyang Cui and Long Wen*. (2024). "Eden: An Edge Computing Empowered Proof-of-Personhood Protocol for Anti-Sybil in Blockchain-based Metaverse". *The 2nd International Conference on Intelligent Metaverse Technologies & Applications (iMETA2024)* 26-29 November 2024, Dubai, UAE **Best Paper Award Nomination**.
17. (C3) **Yinfeng Cao**, Jiannong Cao, Zeyang Cui, Dongbin Bai, Mingjin Zhang, Long Wen. (2024). "PolyTwin: Edge Blockchain-empowered Trustworthy Digital Twin Network for Metaverse". *The 2nd Annual IEEE International Conference on Metaverse Computing, Networking, and Applications (IEEE MetaCom 2024)*, 12-15 August 2024, Hong Kong.
18. (C2) **Yinfeng Cao**, Jiannong Cao, Dongbin Bai, Zhiyuan Hu, Kaile Wang, Mingjin Zhang* (2023). "PolyVerse: An Edge Computing-Empowered Metaverse with Physical-to-Virtual Projection". *IEEE International Conference on Intelligent Metaverse Technologies and Applications (iMETA2023)*, 18-20 September 2023, Tartu, Estonia. **Best Paper Award Nomination**.
19. (J1) **Yinfeng Cao**, Jiannong Cao, Yuqin Wang, Kaile Wang, and Xun Liu (2022). "Security in Edge Blockchains: Attacks and Countermeasures". *ZTE COMMUNICATIONS*, 20(4). **SCI JCR Q2, CCF T2, Cover-page Article**.
20. (C1) Shan Jiang, Jiannong Cao, Juncen Zhu, and **Yinfeng Cao** (2021). "Polychain: a generic blockchain as a service platform". In *Blockchain and Trustworthy Systems: Third International Conference, BlockSys 2021*, Guangzhou, China, August 5–6, 2021, Revised Selected Papers 3 (pp. 459-472). Springer Singapore. **Best Paper Award**.

Preprints and Posters

1. Houda Ferradi, Jiannong Cao, Shan Jiang, **Yinfeng Cao**, and Divya Saxena. (2022) "Security and Privacy in Big Data Sharing: State-of-the-Art and Research Directions." *arXiv*. **Preprint**.
2. Song Wu, Yifan Zhang, Xueqiang Wang, **YinFeng Cao**, Bo Wang, and Qin Wang. (2026) "Understanding Risks of Semi-Drive-By Splash Ads." *IEEE Symposium on Security and Privacy (S&P 2026)*, Poster Session.
3. "Geometry-Consistent 4D Gaussian Splatting for Sparse-Input Dynamic View Synthesis." *IIDS ACBC 2026*, accepted poster.
4. "Decentralized Physical Infrastructure Networks: Backgrounds, Architectures, Open Issues, and Case Studies." *IIDS ACBC 2026*, accepted poster.

Research Translation

1. MAP Protocol (Singapore, <https://www.mapprotocol.io>): a full-chain interoperability protocol based on light clients and secure multi-party computation (MPC), designed for trustless peer-to-peer exchange between Bitcoin (BTC) and multi-chain stablecoins and tokenized assets. The protocol has processed cross-chain asset

transfers at the million-level per day, accumulated transaction fees exceeding 100 million, and successfully launched its token.

2. PolyLink (<https://polylink.evan.cafe>): a blockchain-based open platform for decentralized edge AI computing. It aggregates idle GPU resources worldwide through the PolyCoin incentive mechanism and uses intelligent scheduling to support distributed inference for large language models (LLMs). The platform has connected high-end GPU resources from multiple universities worldwide.
3. Derivation (Hong Kong, <https://www.derivation.dev>): a technology company focused on blockchain, providing customized technical solutions grounded in mathematics and cryptography, and having supported multiple blockchain projects.
4. SynFutures (Hong Kong, <https://www.synfutures.com>): a decentralized platform for perpetual and futures trading across arbitrary assets. It adopts the Oyster AMM mechanism to provide liquidity and stable quotations, with daily trading volume exceeding one million U.S. dollars.

Projects

IEEE ComSoc TC Innovation Project Fund

Jul – Dec 2026

IEEE ComSoc Workshop and PhD Forum on Trustworthy Networked Intelligence
PI; IEEE Communications Society

Academic Services

Journal Reviewer

IEEE Transactions on Dependable and Secure Computing (TDSC), IEEE Transactions on Communications, IEEE Network, IEEE Internet of Things Journal (IoTJ), Computer Communications, Digital Communications and Networks, Communication Networks, High-Confidence Computing, ZTE Communications, etc.

Conference Chair

IIDS ACBC 2026 (Program Chair), BERS 2026 (Workshop Chair)

Program Committee Member / Reviewer

ACM WWW, IEEE INFOCOM, iMETA, BigData, and other venues

IEEE ComSoc Service

2026

Meeting Coordinator, Technical Committee on Next Generation Networks and Internet (NGNI-TC); NGNI Representative, Student Competition Committee

Conference and Workshop Organization

2026

IEEE AIoT 2026 (Workshop Co-Chair), IEEE FINE 2026 (Publication Chair), TNI-Meta 2026 (Workshop Organizer), TNI-AIoT 2026 (proposed)

Program Committee Member

2026

IEEE AIoT 2026, MetaCom 2026, IEEE FINE 2026

Journal Reviewer

IEEE Transactions on Cognitive Communications and Networking, Information Sciences, Computer Networks, Computers in Human Behavior Reports, Blockchain: Research and Applications

Conference Reviewer

2026

Services Conference Federation (SCF), IEEE CyberSciTech

Professional Membership

ACM, IEEE

Teaching Experience

Assistant Professor, HKCT Institute of Higher Education

03CIT4094: AI in Practice

2026 Fall

Lecturer, HKCT Institute of Higher Education

03CTI4075: Cloud Computing

2026 Spring

03CTI4072: Introduction to Industrial Internet of Things

2026 Spring

Mentor, Kanazawa University

STELLA Program: Research Presentation

2024 Fall

Teaching Assistant, The Hong Kong Polytechnic University

COMP5140: Metaverse Fundamentals

2023 Fall

COMP4442: Service and Cloud Computing

2023 Spring

COMP5311: Internet Infrastructure and Protocols

2022 Fall

COMP5311: Internet Infrastructure and Protocols	2022 Spring
COMP3335: Database Security	2021 Fall
COMP4442: Service and Cloud Computing	2021 Spring
COMP4422: Computer Graphics	2020 Fall

Awards and Honors

Best Paper Award, IEEE AIoT	2025
Best Presentation Runner-Up, PolyU Research Student Conference (PRSC)	2025
IEEE HealthCom2024 Honorarium	2024
Best Paper Award Nomination, IEEE International Conference on Intelligent Metaverse Technologies and Applications (iMETA2024)	2024
Best Paper Award Nomination, IEEE International Conference on Intelligent Metaverse Technologies and Applications (iMETA2023)	2023
Best Paper Award, Blockchain and Trustworthy Systems: Third International Conference, BlockSys 2021	2021
First Prize, Microsoft Imagine Cup, Blockchain Track	2019
Second Prize, Challenge Cup Competition, Shaanxi Province	2019
Gold Award, China International College Students “Internet+” Innovation and Entrepreneurship Competition	2018

Scholarships and Sponsorships

Xidian University Innovation Scholarship	2019
Xidian-Haijing Foundation Innovation Scholarship	2018

Professional Service

Secretary-General, PhD Branch, Hong Kong Association of Top Talent and Professionals	2025
Secretary-General, Hong Kong Alumni Association of Xidian University	2021