Yongrae Jo

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EDUCATION

Pohang University of Science and Technology (POSTECH)
Ph.D Student
System Software Laboratory (SSLab)
Computer Science and Engineering
Feb. 2017 - Present

Pusan National University
Bachelor of Computer Science and Engineering
Mar. 2012 - Feb. 2017.

TEACHING EXPERIENCES

- Teaching Assistant, Operating Systems, CSED312, Sep. 2018 – Dec. 2018
- Teaching Assistant, Microprocessor Architecture and Programming, CSED211, Sep. 2017 – Dec. 2017

RESEARCH PAPERS

- **Yongare Jo** and Chanik Park, "Enhancing Ethereum PoA Clique Network with DAG-based BFT Consensus", 6th IEEE International Conference on Blockchain and Cryptocurrency (ICBC'24), May 27 – May 31, 2024, Dublin, Ireland (Accepted to Appear)
- **Yongrae Jo**, Jeonghyun Ma and Chanik Park, Toward Trustworthy Blockchain-as-a-Service with Auditing, 40th IEEE International Conference on Distributed Computing Systems (ICDCS 2020), November 29 – December 1, 2020, Singapore (Acceptance Rate: 18%, 105 out of 584)
- **Yongare Jo** and Chanik Park, 2024. "A Hierarchical Blockchain supporting Dynamic Locality in Edge Computing by Extending Execute-Order-Validate Architecture", In *Blockchain-Based Pervasive Systems: Theory, Applications, and Challenges* [Special issue]. ACM Distributed Ledger Technologies: Research and Practice (***Under Revision***)
- Jeonghyeon Ma, **Yongrae Jo** and Chanik Park, PeerBFT: Making Hyperledger Fabric's Ordering Service Withstand Byzantine Faults, IEEE Access, 2020, doi: 10.1109/ACCESS.2020.3040443
- **Yongrae Jo** and Chanik Park, Codit: Collaborative Auditing for BaaS, 3rd Workshop on Scalable and Resilient Infrastructures for Distributed Ledgers December 9th-13th, 2019 Collocated with Middleware 2019, UC Davis, CA, USA
- **Yongrae Jo** and Chanik Park, A Blockchain Sharding Protocol supporting Dynamic Locality in Mobile Edge Computing, the 13th International Conference on ICT Convergence (ICTC 2022).
- **Yongrae Jo** and Chanik Park, BlockLot: Blockchain based Verifiable Lottery, arXiv preprint arXiv:1912.00642
- **Yongrae Jo** and Chanik Park, A Novel Cross-Shard Protocol for Hierarchical State Sharding Blockchain, The 29th ACM Symposium on Operating System Principles, Poster Presentation, October 23 - October 26, 2023, Koblenz
- **Yongrae Jo** and Chanik Park, Delegated Byzantine Fault Tolerance Using Trusted Execution Environment, Poster Presentation, 27th USENIX Security Symposium (USENIX Security '18)
- Jeonghyeon Ma, **Yongrae Jo**, and Chanik Park, Redesigning Hyperledger Fabric Blockchain with Append-only Ledger, Poster Presentation, 13th USENIX Symposium on Operating Systems Design and Implementation (USENIX OSDI'18)
- **Yongrae Jo** and Chanik Park, MEC-Chain: Scalable Block Chain for Dynamic Locality, Korea Computer Congress (KCC) 2022

- **Yongrae Jo** and Chanik Park, A Novel Transaction Processing in Hierarchical Blockchain for Edge Computing (KCC) 2023
- Haesung Park, **Yongrae Jo**, and Chanik Park, B-Lottery: Blockchain based lottery system with flexible random seed, Korea Computer Congress (KCC) 2019

PATENTS

- Chanik Park, **Yongrae Jo**, System of speculative transaction execution for Blockchain scalability and method thereof, Korea Patent, 10-2021-0019754.
- Chanik Park, **Yongrae Jo**, Apparatus and method of state reshard protocol for dynamic locality in sharded blockchain platforms, Korea Patent, 10-2022-0142805.
- Chanik Park, **Yongrae Jo**, System of Blockchain Framework for Mobile Edge Computing and Method thereof, Korea Patent, 10-2021-0191559.
- Chanik Park, **Yongrae Jo**, Blockchain Network System for Blockchain Service Provider and Method for Blockchain Service Provider, Korea Patent, 10-2022-0023611.
- Chanik Park, **Yongrae Jo**, Apparatus and Methods for Verifiable Lottery, Korea Patent, 10-2017-0170038.
- Chanik Park, **Yongrae Jo**, Blockchain apparatus and method for mobile edge computing, US Patent, US20230208659A1 (Pending)

PROJECT EXPERIENCES

Core Technologies for 5G-Aware Blockchain Networks
Design of hierarchical blockchain for mobile edge computing environment in 5G network. Funded by Institute for Information & Communications Technology Planning & Evaluation (IITP) in South Korea. Apr. 2020 - Dec. 2021

Development of High-performance and High-reliable Blockchain for Distributed Autonomous IoT Platform
Research on Byzantine fault tolerance (BFT) in distributed system to build efficient consensus algorithm for (permissioned) blockchain. Apr. 2017 - Dec. 2018

Core Technologies for Hybrid P2P Network-based Blockchain Services
Design of edge computing-enabled blockchain platform and supporting Ethereum-compatible blockchain. Funded by Institute for Information & Communications Technology Planning & Evaluation (IITP) in South Korea Apr. 2021 - Dec. 2025

Development of Big Blockchain Data Highly Scalable Distributed Storage Technology for Increased Applications in Various Industries
Design of auditing services for blockchain providers**.** Funded by Institute for Information & Communications Technology Planning & Evaluation (IITP) in South Korea Apr. 2021 - Dec. 2025

VOLUNTEER

- Reviewer, IEEE Transactions on Dependable and Secure Computing (TDSC)
- Reviewer, IEEE Access

TECHNICAL SKILLS & LANGUAGES

- Blockchain, Hyperledger Fabric, Docker, Operating Systems, GoLang, Python, GNU/Linux
- English (Intermediary), Korean (Native)

HONORS

- LINE X KIISE Blockchain Software Contest (won the third prize). In this contest, I demonstrated *BlockLot: Blockchain-based verifiable lottery application using Hyperledger/Fabric*. The contest is supported by LINE Corp.