

Aobo LYU

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Education

Sichuan University (SCU) <i>BS in Information Management and Information System, School of Public Administration (SPA)</i> • Overall GPA: 3.78/4.0	Sichuan, China 09/2017 – 06/2021
University of California, Berkeley (UCB) <i>Exchange Student, Information School</i> • Overall GPA: 3.93/4.0	California, United States 01/2020 – 05/2020
Washington University in St. Louis (Wustl) <i>MS & Ph.D. in Systems Science and Mathematics, McKelvey School of Engineering</i> • Overall GPA: 4.0/4.0	Missouri, United States 09/2022 – now
Honors, Scholarship and Awards: • Honors Master (Program) • Honors Graduates of Sichuan Province. • First Prize of Comprehensive Scholarship. • Yongzhuang Top-10 Undergraduate Scholarships.	2023. 2021. 2019/2020. 2019.

Research Papers

Explicit Formula for Partial Information Decomposition

As First Author; Instructor: Prof. Andrew Clark, Department of Electrical and Systems Engineering, McKelvey School of Engineering, Wustl; Prof. Netanel Raviv, Department of Computer Science and Engineering, McKelvey School of Engineering, Wustl; Accepted by ISIT 2024: IEEE International Symposium on Information Theory.

- By introducing the do-operation, an operation over the variable system which sets a certain marginal to a desired value, the paper provides the first explicit formula for calculating the information value so that Williams and Beer's Partial Information Decomposition axioms are satisfied, as well as additional properties from subsequent studies.

System Information Decomposition

As First Author; Instructor: Prof. Andrew Clark, Department of Electrical and Systems Engineering, McKelvey School of Engineering, Wustl; Prof. Jiang Zhang, School of Systems Science, Beijing Normal University; In Progress.

- Based on the Partial Information Decomposition method, the research proposes a System Information Decomposition (SID) that can equally decompose the information of all variables of a system according to their higher-order interaction relationships, which can be used to develop a framework for higher-order graph/networks.

Research on the Impact of Dynamic Issuing Mechanism of Digital Currency on Macroeconomic Operation

As First Author; Instructor: Dr. Liang Zhou, SPA, SCU; Published on Journal of Intelligent & Fuzzy Systems.

- The research proposed a Dynamic Issuance Mechanism (DIM) of Central Bank Digital Currency, which can eliminate currency leakage rate and improve economic operation efficiency. By using the theory of system feedback and the method of Agent-Based Modeling, the paper analyzes and verifies the effectiveness of DIM.

Research on the Demands of Elderly in the Community Home-Based Care Model

As First Author & Session Speaker; Instructor: Prof. Ying ZHAO, SPA, SCU. Included in conference proceedings of DHA2020: International Conference on Digital Health and Medical Analytics, Engineering Index (EI).

- Collected 2200 elderly's demographic information and their demands of community home-based care service, established a service demand model to present and predict the relationship between them. Attended the DHA2020 in Beijing Institute of Technology as sessions speaker, and took part in the discussions of Digital Health Analytics.

Research on Credit Mechanism of Electronic Honor Certificate System based on Blockchain

As Fourth Author; Instructor: Prof. Ying ZHAO, SPA, SCU. Member of AIS. Director of CNAIS; Included in conference proceedings of IECB2020: Electronic Business under COVID-19 Pandemic, EI.

- Proposed a solution of trusted electronic honor certificate system based on blockchain, and verified the effectiveness of the model by using game theory analysis method.

Extracurricular Activities

Master Advisory Board of Department of Electrical and Systems Engineering <i>As member</i>	09/2022 – Now
Washington University in St. Louis Symphony Orchestra <i>As French Horn player</i>	02/2023 – Now
Causal Emergence Study Group of Swarma Research Club, China <i>Co-sponsor of the fourth season</i>	07/2023 – Now