Xiangning Yu
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EDUCATION

PhD 09/2022- 09/2024
Tianjin University (985 & double first-class) Tianjin, China
- **Rank: 1/40**

Bachelor of Engineering 09/2018- 06/2022
Shandong University (985 & double first-class) Shandong, China
- **GPA:** 86.11/100 (**Rank: 9/354**)

PUBLICATIONS

- **Publication 1:** Beyond Traditional Metrics: The Power of Value Entropy in Multidimensional Evaluation of the Service Ecosystem
  Journal: **IEEE International Conference on Web Services (ICWS) (CCF-B)**
  Co-authors: **Xiangning Yu (first author)**, Xiao Xue*, et al.
  Publication year: 2024
- **Publication 2:** A self-evolving network-based artificial society model for the experiment analysis of complex social systems
  Journal: **Information Sciences (CAS Q1, IF=8.1)**
  Co-authors: Yiling Xuan , **Xiangning Yu (co-first author)**, Xiao Xue*, et al.
  Publication year: 2023
  DOI: https://doi.org/10.1016/j.ins.2023.119057
- **Publication 3:** Computational Experiments: Past, Present and Future **(In Chinese)**
  Journal: Acta Automatica Sinica (CCF-A, EI/CSCD)
  Co-authors: Xiao Xue* , **Xiangning Yu (second author),** Deyu Zhou, et al.
  DOI: https://doi.org/10.16383/j.aas.c220092
  Publication year: 2023
- **Publication 4:** Computational Experiments for Complex Social Systems Part IV: Integrated Design of Experiment System
  Journal: **IEEE/CAA Journal of Automatica Sinica (CAS Q1, IF=15.3)**
  Co-authors: Xiao Xue* , **Xiangning Yu (second author)**, Deyu Zhou, et al.
  Publication year: 2024
  DOI:https://doi.org/10.1109/JAS.2023.123639
- **Publication 5:** ChatGPT Chats on Computational Experiments: From Interactive Intelligence to Imaginative Intelligence for Design of Artificial Societies and Optimization of Foundational Models
  Journal: **IEEE/CAA Journal of Automatica Sinica (CAS Q1, IF=15.3)**
  Co-authors: Xiao Xue*, **Xiangning Yu (second author)**, Feiyue Wang
  Publication year: 2023
  DOI: https://doi.org/10.1109/JAS.2023.123585
- **Publication 6:** Computational Experiments for Complex Social Systems—Part III: The Docking of Domain Models
  Journal: **IEEE Transactions on Computational Social Systems (CAS Q2, IF=5.0)**
  Co-authors: Xiao Xue*, **Xiangning Yu (second author)**, Deyu Zhou, et al.

Publication year: 2023
DOI: https://doi.org/10.1109/TCSS.2023.3243894

- **Publication 7:** Computational Experiments: A New Method for Analyzing Cyber-Physical-Social Systems
  Journal: **IEEE Transactions on Systems, Man, and Cybernetics-Systems (CAS Q1, IF=9.2)**
  Co-authors: Xiao Xue*, Yifan Shen, **Xiangning Yu (third author)**, et al.
  Publication year: 2023
  DOI: https://doi.org/10.1109/TSMC.2023.3322402
- **Publication 8:** From SOA to VOA: A Shift in Understanding the Operation and Evolution of Service Ecosystem
  Journal: **IEEE Transactions on Services Computing (CCF-A, IF=6.4)**
  Co-authors: Xiao Xue*, Deyu Zhou, F. Chen, **Xiangning Yu (fourth author)**
  Publication year: 2021
  DOI: https://doi.org/10.1109/TSC.2021.3134718
- **Publication 9:** Unlocking Complexity: Harnessing Value Entropy for Advanced Multidimensional Utility Evaluation in Service Ecosystems **(Under Review)**
  Journal: **IEEE Transactions on Services Computing (CCF-A, IF=6.4)**
  Co-authors: **Xiangning Yu (first author)**, Xiao Xue*
- **Publication 10:** Computational Experiments for Complex Social Systems: Experiment Analysis and Causal Inference **(Under Review)**
  Journal: **IEEE/CAA Journal of Automatica Sinica (CAS Q1, IF=15.3)**
  Co-authors: **Xiangning Yu (first author)**, Xiao Xue*, Yifan Shen, et al.

RESEARCH EXPERIENCES

- **Crowd Intelligence Computing Experimentation Platform (National Key Research and Development Program)** (2022-2024)

  Activities: Designed and implemented an agent-based system driven by advanced technologies such as **Large Language Models (LLMs), reinforcement learning, and imitation learning**. Integrated artificial societal models and real-world data to create highly realistic simulations of intelligent societal operations. The platform focused on analyzing data to perform **anomaly detection, optimization control, and trend forecasting**, aimed at improving both individual and system utility. It also included real-time data integration via simulation engine interfaces, and provided support for **black-box metamodel construction, white-box causal analysis**, and 3D visualization.

  Outcome: Delivered a scalable platform for real-time intelligent societal simulations, anomaly detection, and optimization, supporting advanced experimental designs and causal analysis with 3D visualization.

- **Personalized Knowledge Exploration Quick App Based on Ubiquitous Connectivity** (2020)

  Activities: The project utilized a JRNN joint event extraction model to build a knowledge graph and create an intelligent adaptive learning system. YOLO v3 was employed for object detection and boundary annotation, while fast style transfer was used to implement 12 unique and engaging style transformations. The front-end development was done using Quick App, and the back-end employed Django, Celery, and Redis. The system was deployed using Nginx and Gunicorn.

  Outcome: Deployed a Quick App that **won the National First Prize** and **the Most Commercially Promising Award** at the National Software Innovation Competition. A software copyright was also filed.

- **Train Ticket Flash Sale System Simulation (Capable of Handling High-Concurrency Ticket Sales)** (2021)

  Activities: The project primarily focused on solving key challenges such as handling high concurrency during peak ticket sales, managing complex train transfers between stations, and preventing overselling. In terms of security, it also addressed parameter validation, CAPTCHA generation, and token-based authentication for secure user access.The system was developed using Vue2, Vue Router, and Vuex for the front-end. The back-end was built with SpringBoot, MyBatis, Redis, and RabbitMQ, ensuring efficient processing and communication across services.

  Outcome: Delivered a scalable and secure system that efficiently handled high traffic without overselling. The project was completed independently and is available on Gitee: https://gitee.com/qingxi8/backend_60321

SOFTWARE COPYRIGHT

- Service Utility Computing Experimental System for Crowd Intelligence V1.0 05/2024
- Darwin's Window Parent-Child Personalized Knowledge Exploration Software V1.0 10/2020

EXTRACURRICULAR ACTIVITIES

- **BytyDance - ByteCamp 2022** 07/2022
  Description: During my internship at ByteDance, I delved deeply into distributed systems and the application of machine learning. Collaborating with cross-functional teams from diverse technical backgrounds, I enhanced my project management and technical implementation skills. This opportunity not only deepened my understanding of the practical uses of cutting-edge technology but also led me to the finals of ByteCamp, a competitive selection where **only 116 out of 5000 participants** advanced.

HONOURS AND AWARDS

- Selected for the National New Liberal Arts Research and Reform Elite Talent Program 01/2023
- 13th National College Student Software Innovation Competition, National First Prize & Most Entrepreneurial Potential Award **(Rank 2/1116)** 07/2020
- 13th International Underwater Robot Competition, National Third Prize 09/2020
- 6th China International "Internet+" College Students Innovation and Entrepreneurship Competition, National Finalist 11/2020
- 9th APMCM Asia-Pacific Region College Student Mathematical Modeling Competition, Third Prize 12/2019
- Tianjin University Entrance Scholarship of Special Excellence 12/2022
- Tianjin University Merit Student Award 09/2023
- Tianjin University First Class Academic Scholarship 10/2023
- Three times awarded First-Class Academic Scholarships from Shandong University 2018-2022
- Three times awarded Special Talent Scholarships from Shandong University 2018-2022
- Shandong University Award for Excellence in Social Practice at University and Faculty Level 10/2019
- Twice awarded for Excellent Social Practice at University Level by Shandong University 10/2020 & 10/2021

PROFESSIONAL SUMMARY

Research interests primarily focus on causal agents, causal inference, large models and causality, and

computational experimentation.

Currently serving as a reviewer for the IEEE Transactions on Intelligent Vehicles (T-IV) journal (CCF-B, CAS Q1).

Member of the Chinese Association of Automation (CAA).