

YINXU TANG

☎ 314-913-9473 ✉ nickytang980531@gmail.com 🔗 Google Scholar

Professional Summary

- **PhD Candidate in Computer Science**
at Yeoh's Optimization and Decision Analytics (YODA) Lab, Washington University in St. Louis, USA
- **Research Interests:** *Explainable AI / Scheduling & Planning / Bandits & Reinforcement Learning*

Education

Washington University in St. Louis

PhD in Computer Science | GPA: 3.84

Saint Louis, Missouri, USA

Sep. 2023 – May 2028 (Expected)

ShanghaiTech University (Co-Founded by the Chinese Academy of Sciences)

Master's in Information & Communication Engineering | Major GPA: 3.7 | Overall GPA: 3.66

Shanghai, China

Sep. 2020 – Jun. 2023

ShanghaiTech University

Bachelor's in Computer Science & Technology | Major GPA: 3.5 | Overall GPA: 3.43

Shanghai, China

Sep. 2016 – Jun. 2020

Research Experience

Explainable AI for Human-AI Interaction | Research Leader

Sep. 2023 – Present

- **Dynamic and Personalized Probabilistic Human Modeling**
 - Developed a dynamic probabilistic human modeling framework with Bayesian Inference and Prospect Theory.
 - Conducted human-subject studies to evaluate the model's effectiveness in Argumentation-based Dialogues.
 - *Relevant Paper:*
 - (a) **Yinxu Tang**, Stylianos Loukas Vasileiou & William Yeoh. "Does Your AI Agent Get You? A Personalizable Framework for Approximating Human Models from Argumentation-based Dialogue Traces." AAAI Conference on Artificial Intelligence, 2025 (Accepted (Oral)).
- **Personalized Explanations for Human (Ongoing)**
 - Applied Maximum Posteriori Estimation (MPE) to align human and AI Problog-based mental model.
 - Leveraged Graph Retriever and LLMs to generate context-aware and adaptive explanations, aligning AI and human Knowledge Graph-based mental models.

Scheduling & Planning | Research Leader

Aug. 2024 – Present

- Proposed a hybrid proactive-reactive framework for lifelong meeting scheduling, optimizing long-term fairness and efficiency using Mixed-Integer Linear Programming (MILP) for solving scheduling optimization problems.
- Developed an LSTM-based conflict probability metric to dynamically adapt to scheduling disruptions.
- Conducted experiments to demonstrate that our proposed framework outperformed reactive baselines in reducing disruptions and enhancing fairness.
- *Relevant Paper:*
 - (a) **Yinxu Tang**, Stylianos Loukas Vasileiou, William Yeoh, Alberto Pozanco & Daniel Borrajo. "A Proactive-Reactive Framework for Fairness-Aware Lifelong Meeting Scheduling." International Conference on Automated Planning and Scheduling (ICAPS), 2025 (Under Review).

Bandits & Reinforcement Learning

Feb. 2019 – Jun. 2023

- **Constrained Bandits** | Research Leader and Active Contributor
 - Developed algorithms for nonlinear rewards and long-term constraints, enhancing efficiency in dynamic environments.
 - Analyzed theoretical performance using Upper Confidence Bound (UCB) and Lyapunov Optimization.
 - Simulated diverse scenarios (e.g., emoji prediction with models like BERT, LSTM, RNN) in systems (e.g., edge intelligence) to validate frameworks and showcase performance.
 - *Relevant Paper:*
 - (a) **Yinxu Tang**, Jianfeng Hou, Xi Huang, Ziyu Shao & Yang Yang. "Green Edge Intelligence Scheme for Mobile Keyboard Emoji Prediction." IEEE Transactions on Mobile Computing (TMC), 2024.
 - (b) Xi Huang, **Yinxu Tang**, Ziyu Shao & Yang Yang. "Joint Switch-Controller Association & Control Devolution for SDN Systems: An Integrated Online Perspective of Control & Learning." IEEE Transactions on Network & Management (TNSM), 2021.
 - (c) Jianfeng Hou, **Yinxu Tang**, Xi Huang, Ziyu Shao & Yang Yang. "Green Edge Intelligence Scheme for Mobile Keyboard Emoji Prediction." IEEE International Conference on Communications (ICC), 2021.

- (d) Xin Gao, Xi Huang, **Yinxu Tang**, Ziyu Shao & Yang Yang. “History-Aware Online Cache Placement in Fog-Assisted IoT Systems: An Integration of Learning & Control.” IEEE Internet of Things Journal (IoT-J), 2021.
- (e) Xi Huang, **Yinxu Tang**, Ziyu Shao & Yang Yang. “Joint Switch-Controller Association & Control Devolution for SDN Systems: An Integration of Online Control & Online Learning.” IEEE/ACM International Symposium on Quality of Service (IWQoS), 2020.
- (f) Xin Gao, Xi Huang, **Yinxu Tang**, Ziyu Shao & Yang Yang. “Proactive Cache Placement with Bandit Learning in Fog-Assisted IoT Systems.” IEEE International Conference on Communications (ICC), 2020.
- (g) Junge Zhu, Xi Huang, **Yinxu Tang** & Ziyu Shao. “Learning-Aided Online Task Offloading for UAVs-Aided IoT Systems.” IEEE Vehicular Technology Conference (VTC), 2019.

- **Constrained Graphical Bandits** | *Active Contributor*

- Accelerated online learning by utilizing additional observations through graph feedback mechanisms.
- Conducted theoretical analysis to identify key factors influencing algorithm performance via Graph Theory, such as independence number or degree centrality of the feedback graph.
- Simulated various feedback graphs to support analysis and highlight performance.
- *Relevant Paper*:
 - (a) Shangshang Wang, Simeng Bian, **Yinxu Tang** & Ziyu Shao. “Social-Aware Distributed Meta-Learning: A Perspective of Constrained Graphical Bandits.” IEEE International Conference on Communications (ICC), 2023.
 - (b) Simeng Bian, Shangshang Wang, **Yinxu Tang** & Ziyu Shao. “Social-Aware Edge Intelligence: A Constrained Graphical Bandit Approach.” IEEE Global Communications Conference (GLOBECOM), 2022.

- **Privacy-Preserving Constrained Bandits** | *Research Leader*

- Integrated local Differential Privacy (ϵ -DP) mechanisms to ensure robust user privacy protection.
- Conducted theoretical analysis on the effect of privacy levels (ϵ) on algorithm performance.
- Simulated varying privacy levels to validate the analysis and emphasize performance.
- *Relevant Paper*:
 - (a) Tianyi Zhang, Shangshang Wang, **Yinxu Tang**, Ziyu Shao & Yang Yang. “Privacy-Preserving Edge Intelligence: A Perspective of Constrained Bandits.” IEEE Wireless Communications and Networking Conference (WCNC), 2024.

- **Bandits with Nash Equilibrium** | *Research Leader*

- Designed an algorithm integrating online learning with the Deferred Acceptance Mechanism.
- Analyzed the algorithm’s effectiveness through theoretical evaluation and simulations in SDN systems.
- *Relevant Paper*:
 - (a) **Yinxu Tang**, Tao Huang, Xi Huang, Ziyu Shao & Yang Yang. “Learning-Aided Stable Matching for Switch Controller Association in SDN Systems.” IEEE International Conference on Communications (ICC), 2022.

Networks | *Active Contributor*

Nov. 2023 – Mar. 2024

- Proposed a 6G-based deployment framework for RAG-enhanced generative services, emphasizing real-time knowledge base updates, service customization, and edge intelligence integration.
- Addressed key challenges using techniques such as data fusion, dynamic KB distribution, service customization, and user-interaction optimization in 6G environments.
- *Relevant Paper*:
 - (a) Xi Huang, **Yinxu Tang**, Junling Li, Ning Zhang & Xuemin Shen. “Toward Effective Retrieval Augmented Generative Services in 6G Networks.” IEEE Network, 2024.

Technical Skills

Languages: Python (PyTorch, TensorFlow, Scikit-learn, NumPy, Pandas), C++, C, Matlab.

Awards & Honors

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|---|-----------|
| • National Scholarship for Graduate Students — Ministry of Education of China | Oct. 2022 |
| • Merit Student — ShanghaiTech University | Dec. 2021 |
| • Meritorious Winner — Mathematical Contest in Modelling | Jun. 2018 |

Teaching

Probability & Mathematical Statistics

Fall 2022 & Fall 2021

Teaching Assistant

ShanghaiTech University

- Led weekly tutorial sessions for 70-80 students, focusing on exercises, discussions, and interactive learning.
- Designed and graded assignments, including weekly exercises, project proposals, and exam papers.
- Provided mentorship to students through one-on-one consultations and tailored guidance during office hours.