



Yu Chen

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Research Interests

My main research interests include video analytics in edge computing, crowdsourcing and continual learning.

- For video analytics in edge computing, the computation and transmission resources are constrained, appropriate decisions of resource allocation and video analytics configuration (i.e., resolution, frame rate and DNN) need to be determined for maximal utilities (e.g., analytics accuracy, user-perceived delay, energy consumption and so on). To tackle that, the methods of game theory and Lyapunov optimization are leveraged.
- For video analytics in crowdsourcing, appropriate decisions of worker selection and video analytics configuration need to be determined for maximal crowdsourcing profits. To tackle that, the method of multi-armed bandits is leveraged.
- Besides, I am also interested in real system design and implementation for video analytics in edge computing environment (e.g., based on continual learning).

Education

Ph.D. in Distributed Computing Lab., Department of Computer Science and Technology

Nanjing University

Advisor: Associate Prof. Sheng Zhang and Prof. Sanglu Lu. Nanjing, Jiangsu, China

2019.09 - Now

- Rank 1st in Qualification Examination for Doctoral Students (1/42)

B.S. in Department of Computer Science and Technology

Nanjing University

Advisor: Associate Prof. Sheng Zhang. Nanjing, Jiangsu, China

2015.09 - 2019.06

- Obtain Postgraduate Qualification without Entrance Examination

Honors & Awards

2019.09 - NOW

- 2022 National Scholarship for Doctoral Students
- 2022 Excellent Postgraduate Pacesetter of Nanjing University
- 2021 Xinhua News Agency Scholarship
- 2020 Postgraduate Merit Scholarship of Nanjing University
- 2020 Excellent Member of the Communist Youth League of Nanjing University
- 2019 Principal's Special Scholarship of Nanjing University
- 2019 Excellent Postgraduate Student of Nanjing University

2015.09 - 2019.06

- 2019 Excellent Graduate of Nanjing University
- 2018 People's Scholarship of Nanjing University
- 2018 Silver Award in the 15th Programming Contest of Nanjing University
- 2017 Virtue Star Scholarship in Computer Science of Nanjing University
- 2017 Silver Award in the 14th Programming Contest of Nanjing University
- 2016 People's Scholarship of Nanjing University

Publications

CONFERENCE

- 2023 **[C.8]** Mingtao Ji, Chenwei Su, Yuting Yan, Zhuzhong Qian, **Yu Chen**, Yibo Jin, Sheng Zhang, and Baoliu Ye. INTView: Adaptive Planner for In-Band Network Telemetry without Detours. In: Proceedings of IEEE International Conference on Communications (ICC 2023, CCF-C), 2023
- [C.7]** **Yu Chen**, Sheng Zhang, Yuting Yan, Yibo Jin, Ning Chen, Mingtao Ji and Mingjun Xiao. *Crowd²*: Multi-agent Bandit-based Dispatch for Video Analytics upon Crowdsourcing. IEEE Annual International Conference on Computer Communications (INFOCOM 2023, CCF-A), 2023

- [C.6]** Ning Chen, Shuai Zhang, Sheng Zhang, Yuting Yan, **Yu Chen** and Sanglu Lu. ResMap: Exploiting Sparse Residual Feature Map for Accelerating Cross-Edge Video Analytics. IEEE Annual International Conference on Computer Communications (INFOCOM 2023, **CCF-A**), 2023
- 2022 **[C.5]** **Yu Chen**, Sheng Zhang, Yibo Jin, Zhuzhong Qian, and Sanglu Lu. Multi-server multi-user game at edges for heterogeneous video analytics. In: Proceedings of IEEE International Conference on Communications (ICC 2022, CCF-C), 2022
- [C.4]** **Yu Chen**, Sheng Zhang, Yibo Jin, Zhuzhong Qian, Mingjun Xiao, Ning Chen and Zhi Ma. Learning for Crowdsourcing: Online Dispatch for Video Analytics with Guarantee. IEEE Annual International Conference on Computer Communications (INFOCOM 2022, **CCF-A**), Virtual Conference, 2022
- 2020 **[C.3]** **Yu Chen**, Sheng Zhang, Mingjun Xiao, Zhuzhong Qian, Jie Wu and Sanglu Lu. Multi-user Edge-assisted Video Analytics Task Offloading Game based on Deep Reinforcement Learning. IEEE International Conference on Parallel and Distributed Systems (ICPADS 2020, CCF-C), 2020
- [C.2]** Can Wang, Sheng Zhang, **Yu Chen**, Zhuzhong Qian, Jie Wu and Mingjun Xiao. Joint Configuration Adaptation and Bandwidth Allocation for Edge-based Real-time Video Analytics. IEEE Annual International Conference on Computer Communications (INFOCOM 2020, **CCF-A**), 2020
- 2019 **[C.1]** **Yu Chen**, Sheng Zhang, Yanchao Zhao, Zhuzhong Qian, Yu Liang, Jidong Ge and Sanglu Lu. Efficient VNF Migration and Recovery in Edge Computing Environments. ACM 48th International Conference on Parallel Processing (ICPP 2019, CCF-B), Poster, 2019

JOURNAL

- 2022 **[J.3]** **Yu Chen**, Sheng Zhang, Yibo Jin, Zhuzhong Qian, and Sanglu Lu. Game Theory-based Algorithm for Multi-server Multi-user Video Analytics Task Offloading. Journal of Software (**CCF-A** Chinese Scientific Journal), 2022
- [J.2]** **Yu Chen**, Sheng Zhang, Yibo Jin, Zhuzhong Qian, Mingjun Xiao, Jidong Ge and Sanglu Lu. LOCUS: User-perceived Delay-aware Service Placement and User Allocation in MEC Environment. IEEE Transactions on Parallel and Distributed Systems (TPDS 2022, **CCF-A**), 2022
- 2020 **[J.1]** Yang Dai, **Yu Chen**, Yongjin Zhu and Sheng Zhang. Adaptive Video Analysis in Edge Computing. Journal of Computer Applications (CCF-C Chinese Scientific Journal), 2020

PATENT

- 2022 **[P.1]** Pengju Jiao, Sheng Zhang, **Yu Chen** and Zhuzhong Qian. VNF Migration Method and Device and Storage Medium. Authorization Number: 112019368

Experience

EMPLOYMENT

Research Intern

Mentor: Dr. Yu Zhou and Dr. Hongqiang Harry Liu. XG Laboratory, Damo Academy

- Research on Real-time Multimedia Communication

Alibaba

2021.08 - 2022.05

PARTICIPATED PROJECTS

Natural Science Foundation of China (NSFC) Project

In the Charge of Associate Prof. Sheng Zhang and Prof. Sanglu Lu:

- Research on Resource Scheduling and Collaboration Technology for Multi-edge Cloud
- Research on Autonomous Cooperative Multimodal Sensing and Fusion Mechanism

SERVICES

Journal/Conference Reviewer

Independently or Assisting my Advisor:

- 2020: MSN'20, INFOCOM'20, DPCS'20
- 2021: TMC, INFOCOM'21
- 2022: MASS'22, CBD'22, INFOCOM'22