Yang Yuanhao
Email: xxw9808@163.com Website: github.com/yyhyplxyz

EDUCATION

Sun Yat-Sen University (SYSU) Guangzhou, China
Bachelor of Software Engineering 09/2016-06/2020 (Expected)
- Overall GPA: 3.9/4.0, Ranked 1st in junior year

Miami University-Oxford (Visiting Student) Oxford, Ohio State
Overall GPA: A 07/2017-08/2017

RESEARCH PROJECTS

- **Energy-Efficient Data Routing in Cooperative UAV Swarms for Medical Assistance After a Disaster (First Author)**
- Accepted by *CHAOS*(IF=2.415) and have a press release by AIP 03/2018-2019.1
  - *Abstract:* We investigate an energy-efficient multi-hop data routing algorithm in UAV swarm under some QoS constraints with the goal of minimizing the energy consumption.
    - Because of the NP-hardness of this problem, we propose a polynomial time algorithm based on a genetic algorithm and linearization techniques to solve the problem. To achieve high efficiency, we further enhance our algorithm based on DBSCAN and adaptive techniques.
    - Extensive experiments show that our approach can outperform other minimum-cost flow algorithms.

- **Joint Optimization of UAV Trajectory and Data Processing Offloading: A Deep Learning Based Approach (First Author)**
- Got three well-done comments in *Globecom*. 10/2018-2019.4
  - *Abstract:* Considering the high flexibility of UAVs, we propose a deep RL-based online computation offloading approach for minimizing time delay and energy consumption.
    - We use RL algorithms to jointly optimize both UAV trajectory and task offloading decisions, and we use linear programming result of Base Station's bandwidth allocation to train the neural network. Moreover, we adopt the state-of-art APE-X DPG techniques for better performance.
    - Our experimental results demonstrate that our algorithm can quickly output results in dynamically changing environment and outperform other greedy based benchmark policies.

- **Effective Incentive Mechanism to Stimulate Vehicle Based Crowdsensing with Submodular Rewards (First Author)**
- On draft, wish for publishing in *IEEE Transaction on Mobile Computing* 02/2019-Present
  Abstract: We argue that vehicles move along their trajectories and perform corresponding sensing tasks will gain submodular rewards based on the value of aggregated data minus travelling and processing cost. We propose a greedy based reversed auction mechanism to jointly schedule vehicle's route and assign different tasks, which is truthful and (4+2k) -approximation.

- **Blockchain-based Digital Goods Trading Mechanism in Internet of Vehicles: A Stackelberg Game Approach (Third Author)**
- Under review for *Blocksys* 02/2018-08/2019
  Abstract: We utilize the consortium blockchain technique to establish trust between nodes and guarantee the digital goods trading security and formulate the problem as a two-layer Stackelberg game. We further prove the existence and uniqueness of the Stackelberg equilibrium and demonstrate our algorithm outperforms other methods in various situations.

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WORK EXPERIENCE

Intern (**Southern China Center for Statistical Science**) 09/2018-03/2019

Job: **Lead the project of Image Labelling Website and participate in diabetes prediction**

- *Achievement:* The web application has successfully collected over 130,000 images and the corresponding labels with the help of doctors in Zhongshan Hospital.

Teaching Assistant of Computer Network (**SYSU**) 02/2019-06/2019

Job: **Help students accomplish experiments in computer network**

Intern (Clustar.ai) 09/2018-Present

Job: **Build Multi-Tenants' Predictable RDMA For AI Training**

- *Achievement:* We leverage dependency flow graph analysis to enforce BW guarantee with commodity NIC and switch. Further, we solve the challenge of queue scarcity through multiplexing technique and balanced VM placement.

SKILLS

Proficient in Python, Go; Familiar with C++, LaTeX

ACTIVITIES

- **Main Debater** in **the Debate Team** 09/2016-12/2017
  - Participated in debate contests on a wide range of topics
- **Head** of a **Charitable Student Association** 09/2017-06/2018
  - Organized two weekly inter-school activities and one inter-university activity

HONORS AND AWARDS

Academic and Innovation Prize, SYSU (top 1%) 2018
First Prize Merit-based Scholarship, SYSU (top 5%) 2017-2018
National Second Prize in Mathematical Contest in Modeling (top 3%) 2018
Excellent Student Leader of SYSU 2018
Meritorious in the SYSU Inter-School Collegiate Programming Contest 2017
Second Prize Merit-based Scholarship, SYSU (top 15%) 2016-2017