# HE WANG

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## EDUCATION

**ShanghaiTech University**                                                                                                   Shanghai, China
*M.S. Candidate in Communication and Information System*                          *Sep. 2019 - Jun. 2022 (expected)*
Overall GPA: 3.88/4.00      Major GPA: 4.00/4.00
Supervisor: Prof. Jie Lu

**ShanghaiTech University**                                                                                                   Shanghai, China
*B.E. in Computer Science and Technology*                                                                    *Sep. 2015 - Jun. 2019*
Overall GPA: 3.65/4.00      Major GPA: 3.72/4.00

## TEACHING EXPERIENCE

Teaching Assistant, Linear Algebra.                                                                     Sep. 2019 - Jan. 2020
Teaching Assistant, Introduction to Science and Technology.                          Feb. 2019 - Jun. 2019
Teaching Assistant, Introduction to Programming.                                            Sep. 2018 - Jan. 2019

## RESEARCH INTERESTS

My research interests lie in **distributed optimization**, **distributed** and **federated machine learning**, **multi-agent reinforcement learning** and **algorithmic game theory**.

## PUBLICATIONS

### Preprints/Under Review

1. **H. Wang**, C. Shi, J. Liu and J. Lu, "A Stochastic Block-Wise Gradient-Tracking-Based Algorithm for Distributed Optimization," under preparation to *IEEE Transactions on Control of Network Systems.*

2. X. Wu, **H. Wang**, and J. Lu, 'Distributed Algorithms for Convex Optimization Problems with Coupling Constraints," under 1st round review in *IEEE Transactions on Automatica Control.*

3. Z. Li, H. Hu, **H. Wang**, L. Cai, K. Zhang and H. Zhang, " Why Politicians Tweet: Discovering Causal Backgrounds for Politicians' Tweets from News Articles," under 2nd round review in *Information Processing and Management.*

### Conference Publications

1. **H. Wang**, Y. Shen, Z. Wang, D. Li, J. Zhang, K. Letaief, J. Lu, "Decentralized Statistical inference with Unrolled Graph Neural Networks", accepted to *IEEE Conference on Decision and Control*, 2021.

2. X. Wu, **H. Wang**, and J. Lu, "A Distributed Proximal Primal-Dual Algorithm for Nonsmooth Optimization with Coupling Constraints," in *IEEE Conference on Decision and Control*, 2020.

3. **H. Wang** and J. Lu, "An Inexact Fenchel Dual Gradient Algorithm for Distributed Optimization," in *IEEE International Conference on Control & Automation*, 2020.

4. Y. Zhang, **H. Wang**, J. Huang, and D. Zhao, " Simulations vs. Human Playing in Repeated Prisoners Dilemma," in *International Conference on Principles and Practice of Multi-Agent Systems*, 2018.

## RESEARCH EXPERIENCE

**DOCIA Lab**                                                           ShanghaiTech University
*Supervised by Prof. Jie Lu, on Distributed Optimization*                 *Aug. 2018 - Present*

· Propose novel **communication-efficient** distributed optimization algorithms, using **coordinate descent methods**, *co-advisor: Prof. Ji Liu*.
· Employ **learning methods** for distributed optimization algorithms via **graph neural networks**.
· Investigate algorithms to solve distributed optimization problems **with coupled constraints**.
· **Approximate distributed Fenchel dual gradient methods** to alleviate computation costs.

**Summer Intern**                                                                          UCSD
*Supervised by Prof. Yuanyuan Shi, on Multi-Agent Reinforcement Learning*     *Jun. 2021- Present*

· Incorporate **cooperative game theory techniques** to improve MARL performance with respect to stability and maximizing social welfare.

**FinTech Project Group**                                              ShanghaiTech University
*Supervised by Prof. Haipeng Zhang*                                      *Oct. 2019 - Jun. 2020*

· Propose a framework for **inferencing reasons behind politicians tweets** by finding critical components in tweets and news articles, and establishing causal links between them via attention-based neural networks.

**SMART Lab**                                                          ShanghaiTech University
*Supervised by Prof. Dengji Zhao, on Algorithmic Game Theory*            *Oct. 2017 - Jun. 2018*

· Propose a novel model and a new strategy for Prisoners' Dilemma problems.
· Design an online game to collect real data by interacting between human and AIs.

## OTHER EXPERIENCE

**Conference Volunteer**                                                 Dec. 2017 - Jul. 2018
*Chinese Multi-agent system seminar (2017), SWILD (2018), SSIST (2018)*

**Social Engagement Group Leader**                                       Jun. 2016 - Sep. 2016
*Huishui county, Guizhou Province*

## AWARDS

**Outstanding Student Honor**(Top 5%), ShanghaiTech University, 2020 & 2018 & 2016.
**Outstanding Graduate Honor**(Top 5%), ShanghaiTech University, 2019.
**Academic Excellence Scholarship**, ShanghaiTech University, 2018.
**Merit Student Honor** (Top 10%), ShanghaiTech University, 2017
**Advanced individual in Shanghai Undergraduates' Summer Social Activities** (Top 1%) 2016.

## TECHNICAL STRENGTHS

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|---|---|
| **Programming Languages** | Python, C, MATLAB |
| **Tool &Others** | CVX, CVXPY, PyTorch, Git, Linux, Office, LaTeX |