# Guanhong Wang

guanhongwww@gmail.com
`www.cs.umd.edu/~guanhong/`
Availability: Cycle 1 and 2
Start date: May 21,2023; End date: August 28,2023

**EDUCATION**

## University of Maryland
Aug 2021 -

**Second year of PhD in Computer Science**

**Advisor:** Jonathan Katz

## Pennsylvania State University
Aug 2019 - May 2021

**Master of Computer Science and Engineering**

**Advisor:** Daniel Kifer

## Pennsylvania State University
Aug 2015 - May 2019

**Bachelor of Engineering; Bachelor of Science**

**Advisors:** Daniel Kifer and Danfeng Zhang

Concurrent Majors: Computer Science; Statistics; Mathematics

**PUBLICATION**

**Free gap estimates from the exponential mechanism, sparse vector, noisy max and related algorithms**
Zeyu Ding, Yuxin Wang, Yingtai Xiao, **Guanhong Wang**, Danfeng Zhang, Daniel Kifer
The VLDB Journal 2022

**Proving Differential Privacy via Shadow Execution**
Yuxin Wang, Zeyu Ding, **Guanhong Wang**, Danfeng Zhang, Daniel Kifer
PLDI 2019

**Detecting Violations of Differential Privacy**
**Outstanding Paper Award: 2 out of 134 accepted**
Zeyu Ding, Yuxin Wang, **Guanhong Wang**, Danfeng Zhang, Daniel Kifer
CCS 2018

**RESEARCH**

Broadly I am interested in designing secure algorithms on distributed setting. I also work on improving efficiency of algorithms and mechanisms that were claimed secure.

- **Differential Privacy:**

  Improving efficiency of classical algorithms that were proven to be differentially private, such as noisymax and sparse vector, with statistical approach.

  Using differential privacy techniques to protect privacy under distributed settings - with focus on the shuffle model and GNN.

  Application of differential privacy to encrypt dataset and gathered feedback from users.

- **Differentially Private Deep Learning:**
  Looking for approaches to make gradient clipping less time consuming with Pytorch.

- **Federated Learning:**
  Investigating designs of federated learning and their connection with differential privacy.

- **Zero-Knowlege Proof:**
  Basic knowledge of ZKP.