

## RESEARCH INTERESTS

---

Video Analytics, Networking, Computer System, Security, Deep Learning

## EDUCATIONS

---

**2019 Sep - present**

UNIVERSITY OF CHICAGO, ILLINOIS, UNITED STATES OF AMERICA

*Ph.D. in Computer Science*

**2015 Sep - 2019 Jul**

PEKING UNIVERSITY, BEIJING, CHINA

*Bachelor in Computer Intelligence Science*

## RESEARCH EXPERIENCE

---

**2019 Sep - present**

JUNCHEN'S GROUP, UNIVERSITY OF CHICAGO

*Advised by Prof. Junchen Jiang*

### Deep-neural-network-based Video Analytics

- Applied model-driven approach in video streaming for analytics, which can reduce the bandwidth usage by 59%.
- Explore video compression algorithm that reduces the file size and still maintains the accuracy of analytic results.
- Collaborate with other groups on topics about general stream processing and AI pipelines on vision + NLP.

**2018 Sep - 2019 Jul**

SOAR GROUP, PEKING UNIVERSITY

*Research Assistant of Prof. Chenren Xu*

### Battery-free Backscatter Communication and Localization via Visible Light

- Revised the dynamic-programming-based demodulation algorithm to support high-frequency demodulation.
- Proposed a localization algorithm based on self-developed ranging algorithm, which can achieve sub-meter accuracy.

**2018 Jul - 2018 Aug**

UNIVERSITY OF EDINBURGH

*Research Assistant of Prof. Boris Grot*

### Software Performance Optimization

- Identified the performance bottleneck of the software: severe load imbalance and too much remote memory access.
- Re-implemented part of the software in C++ for fine-grained workload and memory control.
- Proposed a heuristic algorithm to optimize the memory access patterns in an iterative manner.

**2017 Jul - 2018 Jul**

STRUCT, PEKING UNIVERSITY

*Research Assistant of Prof. Jiaying Liu*

### Single Image De-raining

- Proposed a rain discriminator to learn the pattern of rain streaks and preserve the texture of the objects.
- Proposed a multi-granularity perceptual loss to examine the image similarity on multiple scales.

## PUBLICATIONS

---

**SIGCOMM 2020**

*Server-Driven Video Streaming for Deep Learning Inference*

Kuntai Du\*, Ahsan Pervaiz\*, Xin Yuan, Aakanksha Chowdhery, Qizheng Zhang, Henry Hoffmann, Junchen Jiang

**MobiCom 2020**

*Renovating Road Signs for Infrastructure-to-Vehicle Networking: A Visible Light Backscatter Communication and Networking Approach*

Purui Wang, Lilei Feng, Guojun Chen, Chenren Xu, Yue Wu, Kenuo Xu, Guobin Shen, **Kuntai Du**, Gang Huang, Xuanzhe Liu

## AWARDS

---

NSDI travel grant (2020)

Merit Student (2016-2017)

Kwang-Hua Scholarship (2016-2017)

Bronze medal in National Olympiad in Informatics (2014)

## TEACHING EXPERIENCE

---

Teaching assistant, Introduction to Computer System, University of Chicago. (2020)

Teaching assistant, Algorithm Design and Analysis, Peking University. (2018, 2019)