Kuntai Du

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CONTACT INFORMATIONS

Department of Computer Science
University of Chicago
John Crerar Library
5730 S. Ellis Ave.
Chicago, IL 60637

RESEARCH INTERESTS

Video Analytics, Networking

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

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

Attend teaching assistant at CS15400: Introduction to Computer System (2020)
Attend teaching assistant at Algorithm Design and Analysis two times. (2018,2019)

RESEARCH EXPERIENCE

2019 Sep - present — Junchen's Group, University of Chicago
Advised by Junchen Jiang
Machine-centered Video Analytics

- Apply deep-neural-network-driven approach in video streaming for analytics and reduce half of the bandwidth usage on multiple applications and video genres.

2018 Sep - 2019 Jul — SOAR Group, Peking University
Research Assistant of Prof. Chenren Xu
Battery-free Backscatter Communication and Positioning Via Visible Light Communication

- Revise the dynamic-programming-based demodulation algorithm to support high-frequency demodulation.
- Propose a localization algorithm based on self-developed ranging algorithm and achieve sub-meter accuracy.

2018 Jul - 2018 Aug — University of Edinburgh
Research Assistant of Prof. Boris Grot
Software Optimization: Probabilistic Soft Logic

- Profile the software find that the performance is bounded by severe load imbalance and too much remote memory access.
- Re-implement the optimization phase in C++ for fine-grained workload and memory control.
- Propose a heuristic algorithm to optimize the memory access patterns iteratively.

2017 Jul - 2018 Jul **STRUCT, PEKING UNIVERSITY**

Research Assistant of Prof. Jiaying Liu

Single Image De-raining

- Propose a new discriminator for the residue layer. This method is suitable for other low-level image generation tasks to capture the specific prior knowledge.
- Propose a multi-granularity perceptual loss based on online learning theory.

SKILLS

•**Programing Language:**
C/C++, Python, lisp, Matlab, Java.
•**AI-related:**
Low-level image processing, Feature extraction, deep learning, online learning, Tensorflow, PyTorch.
•**Theory-related:**
Basic analysis skill towards real/complex variable functions and operators, optimization, information theory, discrete math.
•**System-related:**
Profile, basic MCU programming, basic os-level programming, basic parallel programming, basic network programming.
•**Others:**
Singing, street dance, drum, xiao.