Hongyu Ke

Ph.D. Student in Computer Science
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personal website

EDUCATION

Ph.D. Student in Computer Engineering   Jan. 2023 – Current
Georgia State Univeristy (GSU)
Advisor: Dr. Haoxin Wang, Assistant Professor, Department of Computer Science

M.S. in Computer Science and Engineering   Jan. 2022 – Dec. 2022
University at Buffalo (UB)

B.S. in Applied Mathematics & Statistics
B.S. in Mathematics   Jan. 2018 – Dec. 2021
StonyBrook University (SBU)

PROFESSIONAL EXPERIENCE

Research Assistant   *Department of Computer Science, GSU*   Jan. 2023 – Current

- **Development of Low-Latency and Energy-Efficient Mobile Augmented Reality (AR) Systems**
  - Designed and implemented an edge-assisted AR system that allows mobile devices (such as Microsoft HoloLens and Android/iOS smartphones) perform real-time object substitution either locally or remotely based on the scene understanding. Implemented wireless gRPC framework using Python for the client-server (NVIDIA Jetson AGX Orin with multiple mobile devices) and inter-container (computer-vision models) communication.
  - Conducted measurement studies on multiple mobile devices with different levels of computation capacities to investigate the inference latency differences and how is energy consumed when executing AR applications either locally or remotely.
  - Designed energy-aware edge-assisted DNN inference model, an optimization algorithm that dynamically selects the optimal combination of the partition point of DNNs and the ratio of a frame slice, to minimize both inference latency and edge device energy consumption.

Research Assistant   *Department of Computer Science and Engineering, Department of Finance, UB*   Jan. 2022 – Dec.2022

  - Used ngspice tool to write and collect SPICE simulators as database. Developed a customized GNN model to predict the analog RC-circuit performance, including the values of resistors and capacitors.
  - Analyzed and processed 3 million financial data using R and Python. Built 7 models to fit the data including XGBoosting, Neural Network, Lasso and Ridge.

Research Assistant   *Department of Applied Mathematics & Statistics, SBU*   Aug. 2021 – Dec.2021

  - Performed analysis such as descriptive statistics, and ANOVA in the social factors' contribution to the personal income and tech companies' stock price, especially during the pandemic. Developed a statistical model to predict the personal income and stock price of tech companies

PUBLICATIONS

Papers Published or Accepted

[C1] Poster: Real-Time Object Substitution for Mobile Diminished Reality with Edge Computing

- Hongyu Ke, and Haoxin Wang
- *ACM/IEEE The Eighth Symposium on Edge Computing (SEC) 2023*, Wilmington, DE, December, 2023

[J1] Metamobility: Connecting Future Mobility with Metaverse

- Haoxin Wang, Ziran Wang, Dawei Chen, Qiang Liu, Hongyu Ke, and Kyungtae Han
- *IEEE Vehicular Technology Magazine 2023*

PROFESSIONAL ACTIVITIES

As a Member

Student Member of Institute of Electrical and Electronics Engineers (IEEE)   Mar. 2023 – Present

As a Reviewer

Reviewer of ACM/IEEE Symposium on Edge Computing (SEC), Poster/Demo Track   2023

Reviewer of IEEE Internet of Things Journal (IoTJ)   2023

As a Volunteer

Student volunteer of International Conference on Pervasive Computing and Communications (PerCom)   2023

ACADEMIC HONORS

Dean's Honor List, *StonyBrook University*   2018-2021
CEAS AMS Memorial Scholarship, *StonyBrook University*   Jun. 2021
NSF Student Travel Award   Oct. 2023