

## Ziyu Ying

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### RESEARCH KEYWORDS

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|--|---|
| <input type="checkbox"/> Mobile/Edge Computing | <input type="checkbox"/> On-Device Processing       |
| <input type="checkbox"/> Video Processing      | <input type="checkbox"/> DNN Inference Optimization |
| <input type="checkbox"/> AR/VR & 3D Vision     | <input type="checkbox"/> Computer Architecture      |

### EDUCATION

#### **Penn State University**

Aug. 2019-Present

Ph.D., Computer Science and Engineering

- Advisor: Mahmut Kandemir, Chita Das

#### **University of Science and Technology of China (USTC)**

Sep. 2015-Jun. 2019

B.E., Electronic Engineering and Information Science

- Advisor: Cong Shen, Wenyi Zhang

### RESEARCH EXPERIENCE

#### **High Performance Computing Lab(HPCL), Penn State, PA**

*Research Assistant*

Aug. 2019-Present

- **Algorithm and System Co-Design for Optimizing Emerging Applications:**
  - **Efficient Point Cloud Analysis on Edge Devices:** speed up the point cloud-based CNNs by increasing its regularities and utilizing the edge GPUs. [*ISCA2023*]
  - **Pushing Point Cloud Compression to the Edge:** for fast and efficient point cloud compression on edge/embedded devices through parallelization. [*MICRO2022*]
  - **Accelerate Neural Network Inference on Mobile/edge Devices:** energy-efficient DNN inference on edge device by exploiting the reuse opportunities across video frames.[*ICDCS2022*]
- Supervised by Prof. Mahmut Kandemir & Prof. Chita Das

#### **Wireless Information Network Lab, USTC, Hefei**

*Research Assistant*

Jan. 2019-May 2019

- Parameter Estimation

#### **Wireless@HKU Group, Hong Kong**

*Research Assistant*

Jul. 2018-Aug. 2018

- Edge Training

#### **The Laboratory for Future Networks, USTC, Hefei**

*Research Assistant*

Sep. 2017-Dec. 2018

- Reinforcement Learning and Wireless Communication

<b>WORK EXPERIENCE</b>	<b>Meta Platforms, Inc.</b> <i>Software Engineering Intern @ Assistant Platform</i> May. 2022-Aug. 2022 <ul style="list-style-type: none"> <li>Library support for the Assistant Framework;</li> <li>Develop Apps that can be invoked/enabled by the Assistant.</li> </ul>
<b>PUBLICATIONS</b>	<ul style="list-style-type: none"> <li><b>Ziyu Ying</b>, Sandeepa Bhuyan, Yan Kang, Yingtian Zhang, Mahmut T. Kandemir and Chita R. Das, EdgePC: Efficient Deep Learning Analytics for Point Clouds on Edge Devices. (<b>ISCA 2023</b>)</li> <li><b>Ziyu Ying</b>, Shuli Zhao, Sandeepa Bhuyan, Cyan Subhra Mishra, Mahmut T. Kandemir, and Chita R. Das, Pushing Point Cloud Compression to the Edge. (<b>MICRO 2022</b>)</li> <li><b>Ziyu Ying</b>, Shulin Zhao, Haibo Zhang, Cyan Subhra Mishra, Sandeepa Bhuyan, Mahmut T. Kandemir, Anand Sivasubramaniam, and Chita R. Das, Exploiting Frame Similarity for Efficient Inference on Edge Devices. (<b>ICDCS 2022</b>)</li> <li>Sandeepa Bhuyan, Shulin Zhao, <b>Ziyu Ying</b>, Mahmut T. Kandemir, and Chita R. Das, End-to-end Characterization of Game Streaming Applications on Mobile Platforms. (<b>SIGMETRICS 2022</b>)</li> <li>Shulin Zhao, Haibo Zhang, Cyan Subhra Mishra, Sandeepa Bhuyan, <b>Ziyu Ying</b>, Mahmut T. Kandemir, Anand Sivasubramaniam, and Chita R. Das, HoloAR: On-the-fly Optimization of 3D Holographic Processing for Augmented Reality. (<b>MICRO 2021</b>).</li> <li>Shulin Zhao, Haibo Zhang, Sandeepa Bhuyan, Cyan Subhra Mishra, <b>Ziyu Ying</b>, Mahmut T. Kandemir, Anand Sivasubramaniam, and Chita R. Das, Déjà view: spatio-temporal compute reuse for energy-efficient 360° VR video streaming. (<b>ISCA 2020</b>).</li> <li>Zhiyang Wang, <b>Ziyu Ying</b>, Cong Shen, OPPORTUNISTIC SPECTRUM ACCESS VIA GOOD ARM IDENTIFICATION. (<b>GlobalSIP 2018</b>).</li> </ul>
<b>TEACHING EXPERIENCE</b>	Pennsylvania State University <i>Teaching Assistant</i> CMPSC 200: Programming for Engineers with MATLAB
<b>AWARDS</b>	<ul style="list-style-type: none"> <li>MICRO Travel Grant 2022</li> <li>Outstanding Student Scholarship of USTC 2016-2018</li> </ul>
<b>RELEVANT COURSE-WORK</b>	<b>Pennsylvania State University (Graduate)</b> ✧Operating System Design ✧Advanced Compiler Construction ✧Introduction to Computer Architecture ✧Algorithm Design and Analysis ✧Large-Scale Machine Learning ✧Computer Vision ✧Image Processing
<b>SKILLS</b>	<ul style="list-style-type: none"> <li>Programming &amp; Tools: C/C++, Python, Java, Kotlin, CUDA, Git, Android SDK, FFMPEG, Shell, Pytorch, TensorFlow, Matlab</li> <li>Operating System: Linux, Windows, MacOS</li> </ul>