Hong Huang

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EDUCATION

University of Florida (UF) Florida, USA

M.S. in Electrical & Computer Engineering (GPA:3.62/4.0) Sep. 2021 – May. 2023

Shanghai Jiao Tong University (SJTU) Shanghai, CN

B.S. in Computer Science (GPA:3.71/4.3) Sep. 2017 – Jun. 2021

PUBLICATION

Huang Hong, Lan Zhang, Chaoyue Sun, Ruogu Fang, Xiaoyong Yuan, and Dapeng Wu. "Distributed Pruning Towards Tiny Neural Networks in Federated Learning." IEEE International Conference on Distributed Computing Systems (ICDCS), 2023

Hong Huang, Jian Cao, Qing Qi, and Boxuan Zhao. "DOCEM: A Domain-Embedding-Based Open-Source Community Event Monitoring Model." In CCF Conference on Computer Supported Cooperative Work and Social Computing, pp. 403-417. Springer, Singapore, 2022.

RESEARCH EXPERIENCE

Multi-V2V: Multi-Vehicle Cooperative Multi-Frame Perception Jan. 2023 – Present

- Designed a spatiotemporal transformer-based system, Multi-V2V, for multi-vehicle 3D detection in autonomous driving scenarios with high communication delay and GPS error.
- Extensively evaluated Multi-V2V, which outperforms other SOTA methods for object detection, demonstrating robust results in challenging autonomous driving scenarios.

Texture and Motion Aware Perception In-Loop Filter for AV1 Sept. 2022 – Feb. 2023

- Proposed a Texture- and Motion-Aware Perception (TMAP) in-loop filter that reduces complexity by using light-weighted CNNs only in texture-rich and high-motion regions within video frames.
- Conducted experiments to show that the proposed TMAP outperforms other light-weighted CNN models as measured by the VMAF metric. (Submitted to IEEE Transactions on Circuits and Systems for Video Technology (TCSVT))

FedTiny: Pruned Federated Learning Towards Specialized Tiny Models Mar. 2022 – Sept. 2022

- Developed FedTiny, a novel pruning-based FL framework, to enable memory-efficient on-device training and determine the specialized on-device model for participating hardware platforms and local data distributions
- Do extensive experimental results demonstrate the effectiveness of FedTiny, which outperforms SOTA baseline approaches, especially when compressed to extremely low-density tiny models

PROFESSIONAL EXPERIENCE

Sony AI (https://ai.sony) Tokyo, JP

Research Intern Mar. 2023 – Present

- Designed a memory-efficient federated learning framework for tiny devices via model architecture pruning, quantization, intermediate tensors dropping, gradients pruning.

YITU Technology (www.yitutech.com/en) Shanghai, CN

Technique Support Intern Jun. 2020 – Dec. 2020

- Built a bidding data mining tool, getting bidding information from the internet and extracting keywords automatically; it saved the product group 72 out of 80 hours in this task per month, and it became the highlight section of the group's progress
- Obtained the only Outstanding Student Intern Award because of the outstanding performance of the internship

TECHNICAL SKILLS

Research Interests: Federated Learning, Deep Learning, Model Compression, Data Mining

Programming: Python, C/C++, Java, JavaScript, PyTorch, TensorFlow, Keras, NumPy, Pandas, SQL

HONORS AWARDS

Graduate School Fellowship, UF 2021 – 2022

Zhiyuan Honors Award, SJTU 2017 – 2021