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EDUCATION

University of Virginia Aug. 2022 – Current

PhD in Computer Science | Mobile Machine Learning and Speech Processing GPA: 4.00/4.00

Tsinghua University Aug. 2017 – Jun. 2022

Bachelor of Engineering | Major in Automation GPA: 3.53/4.00

SKILLS

Programming Languages Python, C, C++

Software Pytorch, sklearn, Numpy, Pandas, Linux

Specializations Machine learning, Mobile computing, Speech processing, Transformer-based foundation models

WORK EXPERIENCES

University of Virginia – Computer Science Department | PhD Candidate Aug 2022-Current

- Working on attention-based speech processing, modify the execution pipeline and enable the current STOA model get 2x execution speedup, implement the method based on ESPnet toolkit
- Working on autonomous driving, assist the research project on attentive ADS. Perform experiment and profiling on Pylot ADS pipeline and CARLA simulator
- Serve as Teaching Assistant in Operating System course, help the students to understand the course project, which builds an OS prototype on Raspberry Pi3 and covers OS bootup, process scheduling, memory management, multi thread programming and profiling, file system, and TEE

Tsinghua University – Automation Department | Research Assistant Aug 2021-May 2022

- Working on single cell epigenomic data enhancement. Applied non-negative matrix factorization, gradient descent with optimal step length to help with the optimization and data enhancement.
- Working on single cell epigenomic, proposed a noval ensemble learning based machine learning approach to estimate the cluster number in the data.

SELECTED PROJECTS

Pilot Speech Processing Mar 2023 – Dec2023

- Propose pilot inference for transformer based speech processing. The pilot inference periodically executes based on streaming partial data and provides information for later full inference and hybrid execution.
- Design and implement the system with pilot inference to speedup the on-device execution of end-to-end transformer based speech processing system by 2x.
- Design selective offloading strategies to help device collaborate with cloud and reduce 50% data offloading.

Attentive ADS Aug 2022 – Feb 2023

- Assist the research on Attentive autonomous driving system. Help with experiments and results analysis.
- Work on Pylot self-driving pipeline, CARLA simulator, also help profile YOLO and EfficientDet algorithms.

scAG and ASTER (Undergraduate Thesis) Aug 2021 – May 2022

- Propose scAG, adopting low rank non negative matrix factorization to enhance the single cell epigenomic data. Also propose ASTER, an ensemble learning based cluster estimation algorithm.