

Xiangwei Wang

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Education

Huazhong University of Science and Technology (HUST)

Sep.2019-Jul.2023

Bachelor of Science in Cyber Science and Engineering

GPA: 3.98/4.00 | Rank: 3/124

Projects

Accelerating CNN Calculation Based on FPGAs

Oct.2021-Present

Student Research / Electronic Design Automation (EDA) Lab | Supervisor: Dr. Hongfei Wang

- Co-design neural network architectures combined with hardware like FPGA.
- Use HDL to build CNN architecture and implement CNN on FPGAs to accelerate computation.
- Propose a quantization algorithm to reduce energy and resource consumption.

DNN Watermark, AI Security

Jan.2021-Oct.2021

Student Research / Supervisor: Dr. Xiaojing Ma

- Applied anomaly detection into watermark detection.
- Proposed a back-door based watermark based on critical points in activation functions such as ReLU.

CPU Design in Verilog HDL

Mar.2021-Jun.2021

Course Experiment: Digital Circuits and Logic Design

- Designed a 32-bit fast adder, 6-bit complement array multiplier and other calculators using Verilog language, and combined them into the Arithmetic logic unit ALU.
- Used Verilog language to design a simple controller and register.
- Simulated designed CPU on Vivado.

Tensor-based Neural Network for Code Completion

Sep.2020-May.2021

Student Research / Supervisor: Dr. Cai Fu

- Built a tensor-based graph neural network to learn the fine code semantic.
- Used the code representation to achieve variable name prediction and name misuse tasks.
- Evaluated the Tensor-based DNN on a large dataset of 2.9 million lines of real-world source code, which were compiled from C/C++ libraries.
- Expanded the Tensor-based DNN in Python libraries.

Activities

The 14th National College Student Information Security Contest

Aug. 2021

- Participated in the lab project named “Tensor-based Neural Network for Code Completion”.
- Designed a simple Web app to achieve variable name prediction and name misuse tasks. After inputting the codes, the users could obtain the prediction results and learn where there might be semantic or grammar mistakes.
- Won the National First Prize (Top 5%).

The 2021 Online Summer Camp in National University of Singapore*Jun. 2021*

- Researched on the computer virus, especially those targeting at OS or computer hardware.
- Analyzed how virus operates on the computer, designed methods to defend and detect them, and acquired the knowledge of OS and computer architecture.
- Won the Excellent Campers Prize.

The 2021 Mathematical Contest in Modeling (MCM)*Jan. 2021*

- Chose Problem F: Checking the Pulse and Temperature of Higher Education.
- Built an evaluation model to assess educational levels of various countries, and proposed feasible methods to improve the educational levels in these countries.
- Won the Honorable Mention Prize.

Honors and Awards

The University-level Merit Undergraduate Student

Oct.2021

The Model Student of Academic Records

Oct.2021

The University-level Merit Undergraduate Student

Oct.2020

The Model Student of Academic Records

Oct.2020

The Outstanding Individual in the Summer Social Practice

*Oct.2020***Skills**

Languages: Linux, C/C++, Python, Verilog**Software:** Pycharm, Matlab, TexStudio, VS2019, Vivado HLS