Resume

Personal Information

Name: Kexin Chu

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Address: Baidu Inc, Haidian District, Beijing, China. 100085

Educational Background

Hefei University of Technology 09/2017-06/2020

- Degree: Master of Integrated Circuit Engineering; Focus on Computer Architecture.
- Exchanged: Institute of Computing Technology, Chinese Academy of Science (12/2018-12/2019)
- Supervisor: Dawen Xu(HFUT), Ying Wang(ICT), Cheng Liu(ICT)

Hefei University of Technology 09/2013-06/2017

- Degree: Bachelor of Integrated Circuit Design and Integrated System
- Major Courses: C/C++ Program Design, Verilog Language, Digital Electronic Technology, Embedded System Design, Digital Integrated Circuit Design and Circuit Layout.

Publications

- Dawen Xu, Kexin Chu, et.al. CNT-Cache: an Energy-Efficient Carbon Nanotube Cache with Adaptive Encoding. (DATE 2020) (Link: https://ieeexplore.ieee.org/document/9116395)

Research Experiences

Low Power Cache Design based on CNFET 05/2019-09/2019

- Simulated the CNFET-SRAM Cells with HSPICE and collected the time and energy consumption.
- Designed the circuit architecture of CNT-Cache and completed CNT-Cache simulation experiments based on Gem5; Wrote and published my academic paper.

Fault Tolerance Research for Systolic Array Neural Network Accelerator 11/2018-11/2019

- CNFET-based register designs face symmetrical bit-error problems; I explored the impact of this error pattern on different accelerators.
- Developed a PyTorch-based 2D Systolic Array accelerator computational simulation unit, and a bit-error injection unit to test the negative impact of the symmetrical bit-error pattern.
- Various methods were explored including sparsification, ECC, data encoding, and sensitivity-based PE rearrangement, reducing the accuracy degradation by 1.6% in the optimal case.

Emotion Recognition Project based on EEG Signal 09/2017-04/2018

- Investigated existing solutions and open source datasets, and expanded the datasets by using data enhancement methods, such as noise addition, data flipping and channel shuffling.
- Trained some ANN and DNN networks by PyTorch, including decision tree, random forest, LSTM, and our Conv-LSTM network.
- Evaluated the performance and power consumption of all these models on both server side and embedded side.

Work Experiences

Beijing Baidu (NASDAQ:BIDU) Inc 07/2020-Present

- Worked as a Senior Engineer in Search Technology Platform R&D Department.
- Responsible for Baidu's DQA direction, including architecture design, software development and system maintenance. And I managed 5 major projects in DQA direction and received several internal awards.
- Supported migration of DQA recall model from QTANN to Ernie, increase semantic matching of the query to the article by feature extraction and improved DQA recall GSB (Good:Same:Bad) evaluation by 16.8%.
- Completed DQA module refactoring (from serial to parallel), and reduced the maximum time consumption by 32%, while the CPU usage and memory usage have been reduced by 40% and 78% respectively.

Skills

Python, C++, Golang, Verilog, and Latex; PyTorch, Gem5, gRPC, Linux; Supporting Vector Machine, Random Forest, CNN, and LSTM.

Awards

BAIDU, Search Platform Breakthrough Star Award(2022); HFUT, National Scholarship Award(2018, 2019) and National Encourage Award(2014);