**(Tris) Jiayi Tian**

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**Education**

**Nanjing University Nanjing, China**

School of Electronic Science and Engineering Sept. 2019- Jul. 2023

* B.Eng., Major in VLSI Design & System Integration
* **Cumulative GPA: 4.51/5.0; Major GPA: 4.49/5.0 (Top 10% in the grade)**

**Awards**

* National Undergraduate Electronic Design Contest, The 2nd Prize in Jiangsu Province, Nov. 2021(30%)
* National Undergraduate Electronic Design Contest, The 2nd Prize in Jiangsu Province, Oct. 2020(30%)
* People's Scholarship, The 2nd Prize in NJU, Nov. 2020(10%)
* Jinxiao Company Scholarship, Nov. 2021(5%)
* People's Scholarship, The Academic Competition Award, Nov. 2021(5%)

**Research Experience**

**Low-bit Quantization Work of BERT in the NLP Area**

*Independent Project, Apr. 2021-Sept. 2022*

* Used Python and Pytorch to perform low-bit quantization in BERT models and enhance the accuracy
* Read literature on Transformer-based models and learned about the model compression methods for BERT, including Binarybert, Ternarybert, Dynabert, Tinybert, etc. Learned about the data augmentation and distillation methods presented in Tinybert, the pruned method in Dynabert, and the low-bit quantization principle in Ternarybert, BinaryBERT, and the latest BiBERT
* Applied ensemble techniques to BERT models and boosted the efficiency and robustness of binary BERT
* Give reports biweekly on the project progress at the group meeting in Professor Zhongfeng Wang's research group with his Ph.D. and master's students
* **Preparing for ICASSP23's submission recently**

**INT8 Quantization Work of BERT with Hardware Deployment**

*Member, Sept. 2021-Dec. 2022*

* Used Python and Pytorch to perform INT8 quantization in BERT models
* Used Matlab to achieve the BERT models' encoder layer for a better understanding of the attention mechanism
* Now my team is trying to use Verilog to deploy the BERT models' inference process on Hardware
* Give team reports on the project progress in biweekly team meetings

**VLSI Design Experiment**

*Individual assignment, March. 2022~June. 2022*

* Used Vivado and Cadence to devise efficient coding for computing 1-dimension convolution
* Proposed three optimization methods based on basic VLSI techniques, including pipeline, parallel, and transpose
* Wrote a report in 11 pages by Latex, and got an A score

**Verilog Design Experiment**

*Member, Mar. 2021-Jun. 2021*

* Used Quartus and Intel Cyclone5 Series' FPGA to complete a VGA display clock on the monitor, which can set time via keyboard
* Responsible for accomplishing the VGA display, mainly used RAM and sequential logic analysis for designing
* Wrote a report in 17 pages by Latex and got an A+ score

**Extra-Curricular Experience**

**Student Union in Sch of Elec Sci and Eng., Organization Department**

*Department Director, Sept. 2020 - Sept. 2021*

* In charge of 2020 summer social practice, won "Excellent Organization Award" (20%)
* Won the 2021 "Excellent Department Director" (15%)
* Organized school social practice, volunteer work, and extracurricular activities

**Volunteer work**

* Achieved the 2021 "Excellent Volunteer Prize" (<1%)
* Achieved the "Excellent Volunteer Prize" on the school's 120th anniversary (<1%)

**School Badminton Association, Activity Department**

*Vice-chairman, Sept. 2021-Sept. 2022; Minister, Sept. 2020- Sept. 2021*

Organized large-scale sports events and contests in NJU, the number of participants is up to hundreds

**Women's Volleyball Team**

*Captain, Sept.2021-Sept. 2022*

Won the 4th prize in the 2019-2020 departmental contest and the 3rd prize in the 2020-2021 departmental contest

**Technical Skills**

* Programming and HDL:

Advanced in C/Matlab, Proficient in Verilog, Python/Pytorch, Familiar with C++

* Hardware design and simulation skills:

Advanced in Vivado/Quartus/Modelsim, Altium Designer, and Multisim, Familiar with SPICE

* TOEFL 102