袁通

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个人简介

本人本科期间随校超算队参加多场世界级赛事，均取得一定的成绩，同时日常协助计算中心老师一起，帮助在校师生更加流畅的使用高性能计算系统，同时在实验室参与高速 EDA 方向的研究。硕士期间主要参与高性能/加密机器学习系统方向的科研。希望在贵单位可以继续协助师生进行高性能计算方向的研究，用以往的经验，更好的服务大家完成科研。

教育背景

香港科技大学（广州）
数据科学与分析学域，信息枢纽，*哲学硕士在读*
高性能机器学习系统实验室
预计毕业时间：2024 年 6 月 2022.09 - 现在

南方科技大学
深港微电子学院, 微电子科学与技术，*工学学士*
高速 EDA 实验室 2018.09 - 2018.06

香港理工大学
电子计算机系, *学期交换* 2021.9 - 2021.12

语言技能

- **雅思**: 7
- **英语四级**: 613

技术能力

- **编程语言**: C++, Python, JAVA, MATLAB
- **硬件设计**: Chisel, Verilog (FPGA & Co-processor), STM32
- **其他工具**: Shell, LaTeX
- **其他技能**: Linux 系统运维

获奖经历

- ISC-22 学生集群竞赛, 作为团队成员获得第三名，2022 年春季
- SC-21 学生集群竞赛, 作为团队成员获得第三名，2021 年秋季
- ASC 20-21 学生超级计算机挑战赛, 作为团队负责人获得二等奖，2021 年春季
- APAC-AI 学生超级计算机竞赛, 作为团队成员获得第三名，2020 年春季
- 微电子学院创新大赛，作为团队成员获得一等奖，作为团队负责人获得二等奖，2020 年春季

学术成果

隐私感知的分布式贝叶斯网络 2023
论文发表中

基于贝叶斯网络的可解释交通预测 2023
论文发表中

荣誉奖励

- **南方科技大学微电子学院优秀毕业生**, 南方科技大学微电子学院颁发，2022 年春季
- **优秀毕业论文**, 南方科技大学颁发，2022 年春季
- **优秀学生奖学金（三等奖）**, 连续三年获得
- **新生奖学金**, 获得三等奖

经历

深圳市紫光同创电子技术有限公司，*实习生*
应用工程部门，*FPGA 工程师* 2021.06 - 2021.07

HKUST(GZ) 高性能计算社区管理团队，*团队成员*
管理用于教学和学习的集群和工作站 2022.12 - NOW

南方科技大学超算俱乐部/超算队，*团队成员*
参加多项世界级超算赛事 2019.09 - 2022.06

南方科技大学计算机研究协会，*团队成员*
建立、维护和推广镜像站点及其他服务, 参与筹划 Linux、Latex 等工具教程讲座 2019.09 - 2022.06

项目经历

GPU 加速的张量补全 2021
我们研究了在张量补全中应用张量网络分解的方法，通过引入张量网络格式，极大地提高了张量补全算法的速度，最终我们使用总变差方法改善了补全图像的细节

数字图像处理 2021
我们基于 Python 设计了一个基于 Sobel 滤波器、边缘检测和图像分割等图像处理方法的车道线检测系统，通过并行优化和预处理，将每秒帧数从 12 提高到 36

图像去马赛克加速器 2020
在这个项目中，我们设计了一个可用于

量子电路模拟器 2020
我们研究了一种称为量子决策图的特殊数据结构的原理和性能，在评估在线提供的代码时，我们发现了该方法的局限性，包括缺乏并行化潜力

RISC-V 协处理器设计 2021
我们使用 Chisel 设计了一个能够通过 Systolic Tensor Array 加速矩阵乘法的 RISC-V 协处理器。在这个项目中，我们采用了一种特殊的设计，优化了组件的重用，从而减少了近 50% 的硬件资源需求

6-TOF 平台 2019
我们设计并制作了一个由 Arduino 和伺服马达驱动的 6-TOF 平台，该平台能够根据我们发送的指令执行一系列动作

Tong Yuan

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Personal Statement

During my undergraduate years, I participated in several world-class competitions with the university's supercomputing team and achieved certain results. I also assisted the teachers in the computing center on a daily basis to help students and faculty use high performance computing systems more fluently, and participated in the research of high-speed EDA in the lab. During my master's degree, I was mainly involved in the research of high performance/cryptographic machine learning systems. I hope I can continue to assist faculty and students in the direction of high performance computing research in your organization, and use my past experience to better serve you in completing your research.

Education

The Hong Kong University of Science and Technology (Guangzhou) (HKUST(GZ))
Data Science and Analysis Thrust, Information Hub
Master of Philosophy in Data Science and Analysis
High Performance Machine Learning System Lab 2022.09 - 2024.06

Southern University of Science and Technology (SUSTech)
School of Microelectronics (SME)
Bachelor of Engineering in Microelectronics Science and Engineering
High Speed EDA Lab 2018.09 - 2022.06

The Hong Kong Polytechnic University
Department of Computing, *Semester Exchange* 2021.9 - 2021.12

Language Skills

- **IELTS**: 7
- **CET-4**: 613

Tech Skills

- **Programming**: C++, Python, JAVA, MATLAB
- **Hardware Design**: Chisel, Verilog (FPGA & Co-processor), STM32
- **Tools**: Shell, LaTeX
- **Skills**: Linux system maintain

Awards

- ISC-22 Student Cluster Competition, Third winner as team member, Spring 2022
- SC-21 Student Cluster Competition, Third winner as team member, Fall 2021
- ASC 20-21 Student Supercomputer Challenge, Second Prize as team leader, Spring 2021
- APAC-AI Student Supercomputer Competition, Third Prize as team member, Spring 2020
- SME Innovation Competition, First Prize as team member, second prize as team leader, Spring 2020

Academic

Privacy Aware Distributed Bayesian Network 2023
In proceeding

Interpretable Traffic Prediction with Bayesian Network 2023
In proceeding

Honors

- **Excellent graduate of College**, awarded by SUSTech SME, Spring 2022
- **Outstanding Thesis**, awarded by SUSTech, Spring 2022
- **Scholarship for Excellent students (Third Prize)**, awarded by SUSTech for three years from 2019 to 2022
- **Scholarship for Freshman**, awarded by SUSTech, third Prize, Fall 2018

Experience

Pango Micro-system Ltd, *Intern*
Application Engineering Department, *FPGA engineer* 2021.06 - 2021.07

HKUST(GZ) HPC Community Manager Team, *Team Member*
Manage clusters and workstations for teaching and learning. 2022.12 - NOW

SUSTech HPC Club/Team, *Team Member*
Attending multiple Super-computing competition worldwide. 2019.09 - 2022.06

SUSTech Computer Research Association, *Team Member*
Establishing, maintaining and promotion mirror sites and other services, assist the preparation of Linux and Latex lectures. 2019.09 - 2022.06

Projects

GPU Accrated Tensor Completion 2021
We studied the application of Tensor-Train decomposition in tensor completion, with the introducing of tensor train format we greatly increased the speed of the tensor completion algorithm, and finally we use total variation to improve the detail of completed image

Digital Image Processing 2021
We designed a lane line detection system based on image processing methods like Sobel filter, edge detection and image segmentation with Python, by parallel optimising and per-processing we increased the frame per second by three times from 12 to 36.

Image De-mosaic Accelerator 2020
In this project, we designed a SoC that can be used to

Quantum Circuit Simulator 2020
We studied the principle and performance of a special data structure called Quantum Decision Diagram, by evaluating the code presented online we identified limitations of this method including the lake of potential to be paralleled

RISC-V Co-processor Design 2021
We used Chisel to design a RISC-V co-processor which can accelerate matrix multiplication by Systolic Tensor Array. We applied a special design in this project to optimise the reuse of the components so the hardware resource required in reduced by almost 50%.

6-TOF Platform 2019
We designed and prototyped a 6-TOF Platform driven by Arduino and servos, the platform was able to perform a series of motion according to the command we sent.