Hui Zheng

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Research Interests

- **Neuroscience**: Computational Neuroscience; Brain-Inspired Computing

Education

Wuhan University Wuhan, China

B.S in Computer Science and Technology, Hongyi Honor College Sept. 2017 - Jun. 2021(expected)

- **GPA**: 3.84/4.00(92.1/100)
- **Rank**: 2/32(selected from 363 students in School of Computer Science, Wuhan University)
- **Exchange**: Visiting Student at University of California, Berkeley(2019 summer)

Publications

- Yunzhe Li*, **Hui Zheng***, He Zhu*, Haojun Ai and Xiaowei Dong. "Cross-People Mobile-Phone Based Airwriting Character Recognition". ICPR2020 Accepted.
- Wenquan Xu, Haoyu Song, Linyang Hou, **Hui Zheng**, Xinggong Zhang, Chuwen Zhang, Wei Hu, Yi Wang, Bin Liu. "SODA: Similar 3D Object Detection Accelerator at Network Edge for Autonomous Driving". INFOCOM2021 Accepted.

Research Experience

Single-Cell Transcriptomics to uncover the Relationships between Inflammation and Hormone in Pituitary Cells, Research Intern

National Institute of Biological Sciences, Beijing

Advised by Prof. Minmin Luo Sept. 2020 - Mar. 2021

- Research on issues related to the role of pituitary cells in systemic neuroinflammation at the single-cell transcriptome level.
- We revealed the transcriptional differences of different types of pituitary cells in the process of central nervous endocrine inflammation regulation. And we discovered a group of transcription factors uniformly expressed in different types of pituitary cells.

SODA: Similar 3D Object Detection Accelerator at Network Edge for Autonomous Driving, Research Intern

School of Computer Science, Tsinghua University

Advised by Prof. Bin Liu May. 2020 - Aug. 2020

- Research on issues related to the real-time processing of autonomous driving in the Internet of Vehicles.
- SODA accelerates the MEC-assisted similar 3D object detection for autonomous driving. We designed efficient algorithms for the novel TCAM-NMC in-network accelerator, and through extensive evaluations, confirmed the architecture feasibility and performance superiority on the subject matter.

Cross-People Mobile-Phone Based Airwriting Character Recognition, Research Intern

School of Cyber Science and Engineering, Wuhan University

Advised by A/Prof. Haojun AI Feb. 2020 - Apr. 2020

- Research on issues related to transfer learning in Air-Writing.
- We developed a system that could transfer between different people. This system has better personalized recognition performance.

RISC-V Super Scalar Processor Design and Internet of Things Application, Research Intern

School of Computer Science, Wuhan University

Co-advised by Prof. Shubo Liu and A/Prof. Zhaohui Cai May. 2019 - Jan. 2020

Projects

Air-Writing Recognition based on Deep Learning, Team Leader

School of Cyber Science and Engineering, Wuhan University

Advised by A/Prof. Haojun AI Oct. 2019 - Dec. 2019

- Works of FPGA Innovation Design Competition. Use Bluetooth ring for Air-Writing. A more natural way of Human-Computer Interaction.
- Use FPGA to filter and unpack the data collected by the acceleration sensor. Then transfer the data to the embedded Arm and use the deep neural network for prediction.

2-issue MIPS-CPU, Team Leader

School of Computer Science, Wuhan University

Co-advised by Prof. Shubo Liu and A/Prof. Zhaohui Cai Jan. 2020 - Aug. 2020

- Works of NSCSCC2020. Use MIPS32 ISA. Run at 80MHz.
- Support all instructions necessary to start the linux kernel. Parallelize TLB and cache. Reach 20 points in the NSCSCC performance test.

Lcore, Team Leader

School of Computer Science, Wuhan University

Co-advised by Prof. Shubo Liu and A/Prof. Zhaohui Cai — Aug. 2019 - Sept. 2019

- Works of NSCSCC2019. A simple operating system, running on MIPS-CPU.
- Support basic process switching, memory management and shell interaction, etc.

Object-Deputy DataBase, Team Member

School of Computer Science, Wuhan University

Advised by Prof. Zhiyong Peng — Jan. 2020 - Mar. 2020

- The design of Database Design and Implementation Course.
- Realize basic operations of ODDB, such as adding, deleting, modifying and searching.

Awards & Scholarships

National Scholarship, Wuhan University — Oct. 2020

Excellent Student Scholarship **(Rank: 1/32)**, Wuhan University — Oct. 2020

National Second Prize of FPGA Innovation Design Competition, China — Dec. 2019

National Second Prize of Intelligent Robot Fighting Competition, China — Oct. 2019

Excellent Student Scholarship **(Rank: 4/32)**, Wuhan University — Oct. 2019

Excellent Student Scholarship **(Rank: 8/32)**, Wuhan University — Oct. 2018

Freshman Scholarship, Wuhan University — Oct. 2017

Skills

- **Programming**: systemVerilog, C, python, R, java, LaTex, javascript, matlab
- **Development Framework**: pytorch, tensorflow, vue
- **English Level**: **CET-4** (538), **CET-6** (533)

Leadership

Minister of Network Technology Department of Student Union

Hongyi Honor College, Wuhan University — Sept. 2018 - Jun. 2019

Vice-Chairman of Microsoft Student Club

Wuhan University — Sept. 2019 - Jun. 2020