

YANG YANG

PERSONAL INFORMATION

birth	Born in China, Sept. 2001
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EDUCATION

Undergraduate	Jilin University, Changchun, China GPA: 3.69/4.0 Rank: 10% Major: Computer Science and Technology Interests: Operating System, Computer Architecture and High Performance Computing.	Feb. 2019 – Present
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AWARDS

Undergraduate	The First Prize Scholarship	Sept. 2020
Academic Year	The Second Prize Scholarship	Sept. 2021
Scholarship		

RESEARCH EXPERIENCE

ETECA Lab	Emerging Technology Enabled Computer Architecture Lab Jilin University, Changchun, Jilin, P.R.China Research Assistant, Advisor: Prof. Jingweijia TAN Research on: Computer architecture & High-Performance Computing <ul style="list-style-type: none">Extended the microarchitecture of General-Purpose Graphics Processing Unit (GPGPU).Explored the process variation of MCM-GPUs based on FinFET and state-of-the-art chiplet technology.Achieved a hybrid approach to predict the performance and power/energy consumption of GPGPU from instruction (PTX, SASS) level and optimizing it using methods like DVFS and low-precision arithmetic.	Feb. 2022 – Present
SKL Computer Architecture	State Key Laboratory of Computer Architecture Institute of Computing Technology, Chinese Academy of Science, Beijing, P.R.China Research Assistant, Advisor: Prof. Guangli Li Research on: Computer architecture & Programming Systems <ul style="list-style-type: none">Improved the optimization ability of compilers based on application's run-time characteristics.Devised an efficient method for extracting and compressing application's dynamic features.Using machine learning methods to instruct the compiler for better machine code generation and integrate it to LLVM.	Jul. 2022 – Present

SKILLS

Languages	C/C++ · Assembly (x86, RISC-V) · Python · Go
Frameworks	CUDA · Pytorch · LLVM
Hardware	Verilog · Quartus · Basic analog circuit design
Software	LINUX/Windows L ^A T _E X · Markdown GNU compiler (gcc, etc.)

OTHER INFORMATION

Languages	CHINESE · Native proficiency. ENGLISH · Professional proficiency.
Interests	Literature (Latin-American, magic realism) · Physics · NBA (Golden State Warriors) · Classical (Chopin)
Characteristic	Strong patience · Highly self-motivated · Creative · Communication and collaboration skilled.

PROJECTS

MapReduce Engine	<p><i>MapReduce Engine</i> is a Go language implementation of the paper.¹ Apr. 2022</p> <p>This engine consists of a fault tolerance (failures like crash and communication-lose of workers) master and a worker cluster. Users can specify their cluster size and working functions (mapf & reducef). With a simulated distributed file system, the workers can communicate with the master through Remote Procedure Call. This MapReduce Engine is a basic component for building a distributed system used for operations over large-scale datasets. You can find the codes here.</p>
EOS	<p><i>EOS</i> is a 32bit *nix operating system developed in C language. Sept. 2021</p> <p>Till now EOS contains a basic bootloader, 2-level paging, 4GB memory management and kernel multithreads. For user environment, it provide a set of traditional shell programs and multi-process mechaism. It follows the x86 ABI, so it's easy to port thoses x86 applications. This project is still <i>active</i> and it will provide a <i>GNU C Project</i> like library and compiler support in the future. You can find the codes here.</p>
CUDA-FFT	<p><i>CUDA-FFT</i> is a CUDA implementation of the Fast Fourier Transform algorithm. Dec. 2021</p> <p>This project implemented 3 algorithms to do the <i>polynomials multiplication</i>, including ordinary multiplication, recursive-FFT and gpu-FFT. The performance was well tested and the contrast was shown in the report. This is my first time doing heterogeneous computing and this project leads me to the research of HPC & GPGPU. You can find the codes, slide, and report here.</p>
WYZ-BAR	<p><i>WYZ-BAR</i> is a bar management system developed in C language. [Supervised by Prof. Shauí Lü] Mar. 2020</p> <p>WYZ-BAR is a <i>collaborative project</i> (WYZ stands for 3 members and Y is for me) and I am the leader. With the multi-process organization and a simple builtin sqlite style database, WYZ-BAR is my <i>first</i> course project in the university and it made me a minor celebrity. The development flow follows the modern open source software's way. A lot of parsing techniques are used to deal with all kinds of data input, this system is purposely optimized for unqualified input like the real world. You can find the codes here.</p>
Others	<p>You can find more projects including course labs (like MIT 6.828), Android application (SmogDetector), <i>etc.</i>, in GitHub.</p>

¹ J. Dean and S. Ghemawat, "MapReduce: simplified data processing on large clusters," *Commun. ACM*, vol. 51, no. 1, pp. 107–113, Jan. 2008, doi:[10.1145/1327452.1327492](#).