EN-MING HUANG

emhuang@m109.nthu.edu.tw • +886 972531300

EDUCATION

Bachelor of Science, Computer Science Sept. 2020 - present
National Tsing Hua University, Hsinchu, Taiwan.
Overall GPA: 4.22/4.30 | **Major GPA**: 4.26/4.30
Class ranking: 6/145

PUBLICATION

- **WER: Maximizing Parallelism of Irregular Graph Applications Through GPU Warp Equalizer**, Under review to the *55th Annual IEEE/ACM International Symposium on Microarchitecture (MICRO)*, 2023
  En-Ming Huang, *Bo-Wun Cheng, Meng-hsien Lin, Chun-Yi Lee, Tsung-Tai Yeh*
- **COLAB: Collaborative and Efficient Processing of Replicated Cache Requests in GPU**, *The 28th Asia and South Pacific Design Automation Conference (ASP-DAC)*, 2023
  Bo-Wun Cheng, ***En-Ming Huang****, Chen-Hao Chao, Wei-Fang Sun, Tsung-Tai Yeh, Chun-Yi Lee*
- **Remote Access Tag Array for Efficient GPU Intra-Cluster Data Sharing**, *The 24th Workshop on Synthesis And System Integration of Mixed Information Technologies (SASIMI)*, 2022
  Bo-Wun Cheng, ***En-Ming Huang****, Chen-Hao Chao, Wei-Fang Sun, Tsung-Tai Yeh, Chun-Yi Lee*
- **Optimization of Multi-Class 0/1 Knapsack Problem on GPUs by Improving Memory Access Efficiency**, *Journal of Supercomputing*, 2022
  En-Ming Huang(first author) *and Jerry Chou*
  Extended from the project of **Solving 0/1 Knapsack Problem on GPU** in Parallel Programming course.

COMPETITION EXPERIENCES

2023 ISC23 Student Cluster Competition | **Second Place** May 2023

- Compete with other international college student contestants (6 teams) including ETH Zurich, Nanyang Technological University, The University of Edinburgh, etc.
- The competition includes building our own cluster computer, running HPL benchmarks, compiling scientific applications, profiling CPU & GPU performance, and optimizing execution efficiency.

2022 SC22 Student Cluster Competition | **Overall winner** Nov. 2022

- Compete with other international college student contestants (9 teams) including MIT, UCSD, UT Austin, Nanyang Technological University, etc.
- The competition includes building our own cluster computer, running HPL benchmarks, compiling scientific applications, profiling CPU & GPU performance, and optimizing execution efficiency.

2021 APAC HPC-AI Competition | **3rd Place** among 37 teams May 2021 - Oct. 2021

- Compete with international college student contestants including Beijin Tsing Hua University and Nanyang Technological University.
- Our team built and optimized several applications on the supercomputer of Singapore's National Supercomputing Center.

2020 ICPC Asia Taipei-Hsinchu Site | **Gold Award** Nov. 2020

- ICPC, the International Collegiate Programming Contest is an algorithmic programming contest for college students, requires comprehensive knowledge of data structures and algorithm.
- Teams of three, work to solve over 10 real-world problems under 5 hours.
- Our team won Gold Award, 10th place among 101 teams.

TEACHING EXPERIENCES

Working contents: (1) Designed homework assignments; (2) Reviewed homework codes and graded students' reports; (3) Helped students resolving problems

Teaching Assistant - CS5422 Parallel Programming (Offered in English) Fall 2021 & 2022
Teaching Assistant - EECS2070 Logic Design Laboratory (Offered in English) Fall 2022
Teaching Assistant - CS1355 Introduction to Programming (I) Fall 2021
Teaching Assistant - CS1356 Introduction to Programming (II) Spring 2022
Teaching Assistant - CS4111 Introduction to Parallel Computing Spring 2022 & 2023

HONORS

Pan Wen Yuan Foundation Scholarship 2022

- Top 1% among the department of Computer Science

Zhu Shun Yi ZYXEL Scholarship 2023

- Top 1% among 145 CS junior students

WORKING EXPERIENCE

R&D Engineer Intern at Synopsys Inc 2022 Jul.-Aug.

- Member of Legalization team, Silicon Realization Group (SRG)
- Project: ML-Based Pin Access DRC Predictor

SERVICE

External Reviewer - Asia and South Pacific Design Automation Conference 2023 (ASP-DAC 23') 2022

SELECTED PROJECTS

Solving 0/1 Knapsack Problem on GPU | Parallel Programming Fall 2020

- Accelerate 0/1 Knapsack Problem on GPU by modifying the dynamic programming algorithm to explore data parallelism for further optimizations targeted for GPU architecture.
- Extended to be the paper **Optimization of Multi-Class 0/1 Knapsack Problem on GPUs by Improving Memory Access Efficiency** with Jerry Chou, the advisor of Parallel Programming course.

Chinese Numerals Recognition with Deep Learning on FPGA | Logic Design Laboratory Fall 2021

- Ported a 3-layer fully connected network with 60,000 parameters to Xilinx Basys 3 FPGA board, which has only 1.8Mb of memory.
- Design modularized computing elements using verilog to support pipelining and parallel computing.
- Inferencing time is 41 μs, close to modern CPU which is about $20 \sim 40\mu$s.
- Graded as the best project among the class

SKILLS

- **Relevant Courses Taken**: Data Structure, Logic Design and Laboratory, Parallel Programming
- **Programming Languages**: C++, Python, CUDA, Verilog, JavaScript
- **Machine Learning Frameworks**: TensorFlow, Pytorch
- **Others**: Linux, System management, Git