Liang-Chi Chen

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https://chi-0828.github.io/LCCHEN.github.io

RESEARCH AREA

1. **Embedded system**
2. **Memory and storage system**
3. **Processing-in-memory architecture and application**

CODING LANGUAGE

1. **C/C++**
2. **python**

EDUCATION

MS. COMPUTER SCIENCE AND INFORMATION ENGINEERING Sept. 2022 - present
National Cheng Kung University (NCKU)
TA, Microprocessor Principles and Applications

BS. COMPUTER SCIENCE AND INFORMATION ENGINEERING Sept. 2018 - Jun. 2022
National Chung Cheng University (CCU)
Presidential award (rank 1 in class), second semester of the 108 academic year

RELEVANT EXPERIENCE

INSTITUTE OF INFORMATION SCIENCE, ACADEMIA SINICA, *Research intern* Summer 2022
During the internship, I studied processing-in-memory architecture and presented my paper on an international conference.

PATERE, *Software engineering intern* Summer 2021
I had projects about computer vision and deep learning, e.g., implementing an object detection application for patient assistance.
Tools and skills: c/c++, python, tensorflow, opencv.

PUBLICATION

1. Journal papers
   a) **LongPhase: an ultra-fast chromosome-scale phasing algorithm for small and large variants**
   Jyun-Hong Lin, **Liang-Chi Chen**, Shu-Chi Yu, Yao-Ting Huang
   Bioinformatics, 2022, 38.7: 1816-1822.
   https://doi.org/10.1093/bioinformatics/btac058
2. Conference papers
   a) **UpPipe: A Novel Pipeline Management on In-Memory Processors for RNA-seq Quantification**
   Liang-Chi Chen, Chien-Chung Ho, Yuan-Hao Chang
   The 60th ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, USA, July 9-13, 2023. (to be appear)

b) **Efficient Sanitization Design for LSM-based Key-Value Store over 3D MLC NAND Flash**
Liang-Chi Chen, Shu-Qi Yu, Chien-Chung Ho, Wei-Chen Wang, Yung-Chun Li
The 38th ACM/SIGAPP Symposium On Applied Computing (SAC), March 27-31, 2023.
(to be appear)

c) **RNA-seq Quantification on Processing in memory Architecture: Observation and Characterization**
Liang-Chi Chen, Shu-Qi Yu, Chien-Chung Ho, Yuan-Hao Chang, Da-Wei Chang, Wei-Chen Wang, Yu-Ming Chang
The 11th IEEE Non-Volatile Memory Systems and Applications Symposium (NVMSA), August 23-25, 2022
https://doi.org/10.1109/NVMSA56066.2022.00014

PROJECT

1. **Genome sequencing on processing-in-memory system**
   Running state-of-the-art RNA quantification software "kallisto"on UPMEM DPU system
   https://github.com/chi-0828/RNA-Abundance-Quantification-on-UPMEM

2. **Sanitization design on NAND flash**
   SSD simulator implementation in C++

3. **longphase**
   Assist in implementation of phasing software
   a) Parsing module and multi-threading parallelism
   b) Build configuration tool

   https://github.com/twolinin/longphase