

Jhe-Yu Liou

Research Assistant

<http://caslab.ee.ncku.edu.tw/dokuwiki/en:member:elvis>

lioujheyu@gmail.com



Experience

Research Assistant at National Cheng Kung University

August 2012 - Present (2 years 4 months)

- Lead a group to formulate a shader binary instruction format against HSAIL and Nvidia's PTX and implement the GPU shader core based on it.
- Explore and verify the custom GPU simulator based on OpenGL ES 2.0 and OpenGL ES Shading language.
- Teach team member to understand 3D computer graphic.
- Wikilize lab's web site by using dokuwiki.

Digital IC designer at ALi Corporation

October 2010 - July 2012 (1 year 10 months)

- Co-work with CAD team to integrate ARM Mali GPU into our own SoC.
- Verify ARM Mali GPU's functionality by using FPGA and bare metal Unix environment.
- Introduce about 3D graphic and GPU rendering algorithm to team member.

Second Lieutenant at R.O.C (Taiwan) Army

November 2009 - October 2010 (1 year)

Publications

Re-visit Blocking Texture Cache Design for Modern GPU

the 11th International SoC Design Conference (ISOCC) November 3, 2014

Authors: Jhe-Yu Liou, Chung-Ho Chen

A top-down synthesis methodology for flow-based microfluidic biochips considering valve-switching minimization.

International Symposium on Physical Design March 26, 2013

Authors: Kai-Han Tseng, Sheng-Chi You, Jhe-Yu Liou, Tsung-Yi Ho

Projects

Support HSA for the Unified Shader GPU architecture

January 2014 to Present

Members: Jhe-Yu Liou

- Upgrade the shader core by manipulating HSA intermediate language (HSAIL) instead of Nvidia graphic programming language series 4 (NVGP4) from last project.
- Define a custom binary instruction format based on HSAIL.
- Addressing and solving the SIMT architecture issue such as branch divergence.

Development of Unified Shader Architecture GPU

January 2013 to December 2013

Members: Jhe-Yu Liou

- A programmable GPU simulator based on OpenGL ES 2.0.
- Using Nvidia GPU programming language as shader assembly language.
- Support Anisotropic filter,
- Project URL: http://lioujheyu.synology.me/~git/ogles1_1/



Design and Implementation of a Multiview supported GPU

August 2007 to April 2009

Members: Jhe-Yu Liou

- A GPU C model simulator based on OpenGL ES 1.1
- A synthesizable GPU RTL model
- Feature with RGSS anti-aliasing, early depth test, tile-based rendering

Languages

Chinese

(Native or bilingual proficiency)

English,

(Professional working proficiency)

Skills & Expertise

**C++, C, 3D graphics, GPU, OpenGL ES, Regular Expressions, Verilog, Git, Doxygen
Graphviz, Flex, Bison, Sikuli, Wikis, Unix**

Education

National Cheng-Kung University

Master's Degree, Computer and Communication Engineering,, 2007 - 2009

Activities and Societies: Badminton School Team

National Cheng-Kung University

Bachelor's Degree, Electrical Engineering, 2003 - 2007

Activities and Societies: Badminton School Team