SUNG–TA TSAI

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Areas of Interest

- Digital Design Verification using SystemVerilog
- Digital IC Design in RTL using Verilog

Education

[Master's Degree] Graduate Institute of Electronics Engineering (EDA), NTU
[Undergraduate] Department of Electrical Engineering, NTU

Skills and Awards

[SystemVerilog]	[Verilog]	[C++]
- Intern in Avery Design Systems - Verification IP (VIP) team of Ethernet	- Computer Architecture - Digital System Design - Computer-aided VLSI System Design (CVSD)	- Data Structure and Programming (DSnP) - SOC Verification - Algorithms

[Language] TOEIC Listening and Reading: 860
[Award] Got Dean's list Award in 2017 Spring and 2019 Fall Semester

Master's Degree Work

- Intern at Avery Design Systems (Design Verification), VIP team of Ethernet

- Use SystemVerilog to build testcases and enhance Bus Functional Model
- Flex Ethernet
- MAC Merge Sublayer of Ethernet

Research and Project Experiences

https://github.com/Sung-DaTsai

[Undergraduate Research] PI-PO-Aware Heuristic for Dynamic Test Compaction

- Use three-phase ATPG and least PI and PO product assignment heuristic to inject secondary fault
- Balance between DTC runtime and number of test patterns
- Workshop paper in WRTLT 2019

[Project] Pipelined MIPS in Digital System Design Course (RTL, synthesis)

- Implement five stage pipelined MIPS with Cache design

[Project] Component Labeling Engine in CVSD Course (RTL, synthesis, APR)

- Label Connected Component on graph using two-pass component labeling algorithm

[Project] Functionally Reduced AND-Inverter graph in DSnP course (C++)

- Given a netlist file in and-inverter graph format, use some operations to minimize it
- Operations including constant propagation, structure hashing and using SAT solver to remove redundant gates
- Got ninth prize on this project

[Project] X-value Equivalence Checking in SOCV course (C++)

- Use two bits to represent X state and solve Equivalence checking by SAT solver

[Project] Rectilinear Polygon Operations for Physical Design (C++)

- Use C++ boost library to handle merge, clip and split operations

- **ML Related works**

[Internship] Predict PM2.5 at IIS, Academia Sinica (ML) **Jul. – Aug. 2018**

- Use Keras to predict PM2.5 with different kinds of data processing methods
- LSTM can get better predicting results in this work