

# Dongyang Wu

wudongya@usc.edu | www.linkedin.com/in/william-wu-dongyang/

## EDUCATION

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<ul style="list-style-type: none"><li>• <b>University of Southern California (USC)</b> Master of Electrical Engineering; GPA: 4.0/4.0<ul style="list-style-type: none"><li>◦ C</li><li>◦ o</li><li>◦ u</li><li>◦ r</li><li>◦ s</li><li>◦ e</li><li>◦ s</li><li>◦ ”</li><li>◦ :</li><li>◦ ”</li><li>◦</li><li>◦ D</li><li>◦ i</li><li>◦ g</li><li>◦ i</li><li>◦ t</li><li>◦ a</li><li>◦ l</li><li>◦</li><li>◦ S</li><li>◦ y</li><li>◦ s</li><li>◦ t</li><li>◦ e</li><li>◦ m</li><li>◦</li><li>◦ D</li><li>◦ e</li><li>◦ s</li><li>◦ i</li><li>◦ g</li><li>◦ n</li><li>◦</li><li>◦ (</li><li>◦ E</li><li>◦ E</li><li>◦ 5</li><li>◦ 6</li><li>◦ 0</li><li>◦ )</li><li>◦ ,</li></ul></li></ul>	Los Angeles, CA 08/2022-05/2024
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- **The Chinese University of Hong Kong, Shenzhen (CUHKSZ)**  
Bachelor of Computer Science and Engineering; GPA: 3.4/4.0

Shenzhen, China  
09/2018-06/2022

## SKILLS

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**Programming Languages:** Python, C/C++, Verilog, VHDL, SQL, MIPS

**EDA Tools:** Virtuoso, QuestaSim, Xilinx Vivado

**Protocols:** TCP/IP, USB, SPI, AXI, PCIe, MOESI

**Tools:** UNIX, Linux, Git, Makefile, CUDA

## PROJECTS

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- **Tomasulo Out-of-Order CPU** 06/2023-08/2023
  - Designed CPU with Out-of-Order Execution and In-order Commitment.
  - Implemented Branch Prediction Buffer(BPB) and Return Stack Address(RAS) for speculative execution beyond branches.
  - Implemented BRAM-based Copy Free Check-pointing(CFC) with RRAT for recovery from path misprediction.
  - Implemented Store Buffer(SB), Store Address Buffer(SAB), Reorder Buffer(ROB), 2-stage Dispatch Unit, Free Register List(FRL) and Issue Unit(IU).
- **PCIe Physical Layer Design** 06/2023-08/2023
  - Designed physical layer components for PCIe 2-lane system.
  - Implemented Elastic Buffer with Primed Method to achieve Clock Domain Crossing by adjusting Skip Ordered Set.
  - Implemented Deskew Buffer to eliminate skew between lanes.
- **VLSI CMOS Design** 01/2023-05/2023
  - Designed basic combinational and sequential circuits using Cadence Virtuoso.
  - Accounted for 20-bit mux unit, 20-bit Han-Carlson adder unit 20-bit register Schematic and Layout design work
  - Integrated components using wave pipeline with the area of  $5.96 \text{ mm}^2$  in 2.0 GHz (cycle time=0.5 ns).
  - Validated the correctness of all aforementioned components with vector file and cleared DRC and LVS errors.