YUAN-CHUN LUO

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RESEARCH INTEREST

Energy-Efficient Nanoelectronics and Optoelectronics

EDUCATION

National Tsing Hua University (NTHU), Hsinchu, Taiwan *Sep. 2014 - Jun. 2018*
B.S., Electrical Engineering (EE) Overall GPA: 4.07/4.3 (3.93/4)

RESEARCH EXPERIENCE

Atomic Layer Deposition Group, Purdue University West Lafayette, IN
Visiting Student *Oct. 2018 -Dec. 2018*

- Advisor: Professor Peide Ye
- Apply germanium ferroelectric nanowire field effect transistors (FET) as analog memories.

Emerging Device Group, National Chiao Tung University Hsinchu, Taiwan
Research Assistant *Dec. 2017 - Sep. 2018*

- Advisor: Professor Steve S. Chung
- Led a research project on ferroelectric FETs and negative-capacitance FETs. (SSDM'18, VLSI-TSA'19)
- Investigated high-frequency characteristics of air-gap FinFETs using a simulation tool, Sentaurus TCAD.

Terahertz Optoelectronic Device Lab, NTHU Hsinchu, Taiwan
Research Assistant *Jun. 2017 - Jun. 2018*

- Advisor: Professor Shang-Hua Yang
- Designed terahertz plasmonic emitters and antenna arrays with a simulation tool, COMSOL, and MATLAB.

System and Storage Design Lab, NTHU Hsinchu, Taiwan
Research Assistant *Sep. 2016 - Aug. 2017*

- Advisor: Professor Ren-Shuo Liu.
- Achieved adaptive Convolutional Neural Networks using Python (VLSI-DAT'18).

PUBLICATION

- The Guideline on Designing a High-Performance NC MOSFET by Matching the Gate Capacitance and Mobility, ***to appear in 2019 VLSI-TSA***
  - **Y. C. Luo**, F. L. Li, E. R. Hsieh, C. H. Liu, S. S. Chung, T. P. Chen, S. A. Huang, T. J. Chen, and O. Cheng;
- New Experimental Approaches to Extracting Negative Capacitances of 14nm NC-FinFET in Exploration of Short-channel & Body Effect to Achieve Free Hysteresis, ***Late News paper, 2018 SSDM (Oral Presentation)***
  - **Y. C. Luo**, E. R. Hsieh, C. J. Su, S. S. Chung, T. P. Chen, S. A. Huang, T. J. Chen, and O. Cheng;
- An Experimental Method of Negative Capacitance(NC) Extraction in NC-gated-FinFET and Obtainment of Near-Free-Hysteresis Characteristics by Body Effects, ***Applied Physics Letters (Submitted)***
  - **Y. C. Luo**, E. R. Hsieh, C. J. Su, S. S. Chung, T. P. Chen, S. A. Huang, T. J. Chen, and O. Cheng;
- DrowsyNET:Convolutional Neural Networks with Runtime Power-Accuracy Tunability Using Inference-Stage Dropout, ***2018 VLSI-DAT (Oral Presentation)***
  - R. S. Liu, Y. C. Lo, **Y. C. Luo**, C. Y. Shen, and C. J. Lee;

SELECTED HONOR AND AWARD

- 1st Place, EE Annual Research Competition *Mar. 2018*
  - Research project competition with more than 90 student competitors in EE, NTHU.
- 2nd Place, EECS Annual Research Competition *Apr. 2018*
  - Research project competition with more than 200 student competitors in EECS, NTHU.
- Excellent EECS Student Award *Jun. 2017*
  - Top 10% of all students in EECS, NTHU.
- Oversea Exchange Student Scholarship *Feb. 2016*
  - Awarded to top 10 students in EE, NTHU, with USD 3100.
- Outstanding Academic Achievement Award *Oct. 2015*
  - Top 5% of all students in EE, NTHU.

RELATED SKILL

GRE score	331/340 (Q:170/170, V:161/170)
TOEFL score	105/120 (R:29/30, L:29/30, S:22/30, W:25/30)
Simulation Tools	Sentaurus TCAD and COMSOL Multiphysics
Nano-fabrication	**Cleanroom in NTHU:** (1) Certificate of nano-fabrication training **Cleanroom in National Nano Device Laboratories (NDL):** (2) License of E-gun and Chemical Lab (3) Training for E-beam system **Graduate-level fabrication course** (4) ULSI technology (A+)
Software Languages	C++, Matlab, and Python
Hardware Languages	Verilog, Hspice, and Laker

SELECTED COURSE PROJECT

Solid-State Physics, Term Paper *Jun. 2017*
EE, NTHU

- Investigated strained silicon.

VLSI, Memory System Circuit Design Project *Jun. 2016*
EE, NTHU

- Designed 256 bit ROM macro by completing pre-simulation, schematic, layout, and post-simulation.

Semiconductor Microwave Electronic Devices, Term Paper *Jun. 2016*
EE, NTHU

- Investigated silicon-based RF semiconductor devices.

LEADERSHIP & TEAMWORK

President, Electrical Engineering Student Association *Jun. 2016 - Jun. 2017*
NTHU

- Arranged ”mentor session,” where students can ask for advice from managers at TSMC.
- Built a 20-student team to receive students and a professor from City University of Hong Kong.
- Arranged a 15-student team to introduce diverse branches in EE to high school students in Taiwan.
- Organized a Christmas party for more than 200 students from four different departments.