

YUAN-CHUN LUO

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RESEARCH INTEREST

Nanoelectronics

EDUCATION

National Tsing Hua University (NTHU), Hsinchu, Taiwan
B.S., Electrical Engineering (EE)

Sep. 2014 - Jun. 2018
Overall GPA: 4.07/4.3 (3.93/4)

EXPERIENCE

Purdue University - ALD Group
Visiting Student

West Lafayette, IN
Oct. 2018 - present

- Advisor: Professor Peide(Peter) Ye
- Apply germanium ferroelectric nanowire FETs as analog memories.

National Chiao Tung University (NCTU), DSML Group
Research Assistant

Hsinchu, Taiwan
Jan. 2017 - Sep. 2018

- Advisor: Professor Steve S. Chung
- Measured mobility and free energy in Ferroelectric FETs (FeFET) (submitted to VLSI-TSA'19)
- Extracted negative capacitance values, and minimize hysteresis in FeFETs (SSDM'18) (submitted to APL).
- Verified RF characteristics for FinFETs using the simulation tool, TCAD.

NTHU - THz Optoelectronic Devices Lab
Research Assistant

Hsinchu, Taiwan
Jun. 2017 - Jun. 2018

- Advisor: Professor Shang-Hua Yang
- Designed THz plasmonic photomixers and antenna arrays using COMSOL and MATLAB.

NTHU - SSD LAB
Research Assistant

Hsinchu, Taiwan
Sep. 2016 - Aug. 2017

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

PUBLICATION

An Experimental Method of Negative Capacitance(NC) Extraction in NC-gated-FinFET and Obtainment of near-free-Hysteresis Characteristics by Body Effects

- **Y. C. Luo**, E. R. Hsieh, C. J. Su, S. S. Chung, T. P. Chen, S. A. Huang, T. J. Chen, and O. Cheng; *Applied Physics Letter (Submitted)*

The Guideline on Designing a High-Performance NC MOSFET by Matching the Gate Capacitance and Mobility Enhancement

- **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; *2019 VLSI-TSA (Submitted)*

New Experimental Approaches to Extracting Negative Capacitances of 14nm NC-FinFET in Exploration of Short-channel & Body Effect to Achieve Free Hysteresis.

- **Y.-C. Luo**, E. R. Hsieh, C. J. Su, S. S. Chung, T. P. Chen, S. A. Huang, T. J. Chen, and O. Cheng; *2018 SSDM Late News (Accepted, oral presentation)*

DrowsyNET: Convolutional Neural Networks with Runtime Power-Accuracy Tunability Using Inference-Stage Dropout.

- R. S. Liu, Y. C. Lo, **Y.-C. Luo**, C. Y. Shen, and C. J. Lee; *2018 VLSI-DAT (Accepted, oral presentation)*

SELECTED HONOR AND AWARD

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|--|-------------------------|
| Champion, Contest of implementation with more than 100 student competitors. | <i>EE, NTHU, 2018</i> |
| Runner up, Contest of implementation with more than 250 student competitors. | <i>EECS, NTHU, 2018</i> |
| Excellent-EECS student award for top 10% of all students. | <i>EECS, NTHU, 2017</i> |
| Oversea exchange student scholarship with USD 3100. | <i>EE, NTHU, 2016</i> |
| Outstanding academic achievement for top 5% of all students. | <i>EE, NTHU, 2015</i> |

LEADERSHIP & TEAMWORK

President, Student Association *Jun. 2016 - Jun. 2017*
EE, NTHU

- Built a 20-student team to receive students and an advisor from City University of Hong Kong.
- Organized Christmas party for more than 200 students from four different departments.

RELEVANT COURSES

Core Courses

ULSI Technology (A+, graduate level, nano-fabrication)
Semiconductor Microwave Devices (A+, graduate level)
Introduction to Solid-State Physics (A+)
Introduction to Solid-State Electronic Devices (A+)
Introduction to Integrated Circuit Design (A+)

Other Courses

Data Structure (A+)
Electromagnetic Waves (A+)
Feedback Control Systems (A+)
Computer Architecture (A+)
Modern Physics (A+)

SKILL

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|---------------------------|--|
| 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) |
| Software Languages | C++, Matlab, and Python |
| Hardware Languages | Verilog, Hspice, and Laker |
| Simulation Tools | COMSOL Multiphysics, and TCAD |

SELECTED COURSE PROJECT

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

- Completed circuit design, pre-sim, layout, and post-sim of a memory system.

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

- Investigated into silicon based RF semiconductor devices.