

YUAN-CHUN LUO

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RESEARCH INTEREST

Nano-Electronics

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
Dec. 2017 - Sep. 2018

- Advisor: Professor Steve S. Chung
- Measured mobility and free energy in Ferroelectric FETs (FeFET)
- Extracted negative capacitance values, and minimize hysteresis in FeFETs (SSDM'18)
- 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

- **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

Champion, Contest of implementation <ul style="list-style-type: none">Research project competition with more than 100 student competitors.	<i>EE, NTHU, 2018</i>
Runner up, Contest of implementation <ul style="list-style-type: none">Research project competition with more than 250 student competitors.	<i>EECS, NTHU, 2018</i>
Excellent EECS student award <ul style="list-style-type: none">Top 10% of all students in the college of EECS, NTHU.	<i>EECS, NTHU, 2017</i>
Oversea exchange student scholarship <ul style="list-style-type: none">Awarded with USD 3100.	<i>EE, NTHU, 2016</i>
Outstanding academic achievement <ul style="list-style-type: none">Top 5% of all students.	<i>EE, NTHU, 2015</i>

LEADERSHIP & TEAMWORK

Student Association <i>President</i> <ul style="list-style-type: none">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.	<i>Jun. 2016 - Jun. 2017</i> <i>EE, NTHU</i>
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RELEVANT COURSES

Core Courses <ul style="list-style-type: none">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 <ul style="list-style-type: none">Data Structure (A+)Electromagnetic Waves (A+)Feedback Control Systems (A+)Computer Architecture (A+)Modern Physics (A+)
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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)
Nano-fabrication	(1) Certificate of nano-fabrication training in NTHU (2) License of E-gun and Chemical Lab in National Nano Device Laboratories (NDL) in Taiwan (3) training for E-beam system in NDL, Taiwan
Simulation Tools	COMSOL Multiphysics, and TCAD
Software Languages	C++, Matlab, and Python
Hardware Languages	Verilog, Hspice, and Laker

SELECTED COURSE PROJECT

VLSI, Memory System Circuit Design Project <i>EE, NTHU</i> <ul style="list-style-type: none">Completed circuit design, pre-sim, layout, and post-sim of a memory system.	<i>Jun. 2016</i>
Semiconductor Microwave Electronic Devices, Term Paper <i>EE, NTHU</i> <ul style="list-style-type: none">Investigated into silicon based RF semiconductor devices.	<i>Jun. 2016</i>