

Po-Shao Chen

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RESEARCH INTEREST

Energy efficient hardware accelerator for digital signal processing, machine learning, or bioinformatics

EDUCATION

Master of Science in Electronics Engineering

Sep. 2018 – Feb. 2021

National Taiwan University

Taipei, Taiwan

- Thesis: An Energy-Efficient Accelerator IC for Dark Channel Prior Based Blind Image Deblurring
- Advisor: Prof. Chia-Hsiang Yang

Bachelor of Science in Electrical Engineering

Sep. 2014 – June 2018

National Taiwan University

Taipei, Taiwan

PUBLICATIONS

P.-S. Chen, Y.-L. Chen, Y.-C. Lee, Z.-S. Fu, and C.-H. Yang, "A 28.8mW Accelerator IC for Dark Channel Prior Based Blind Image Deblurring," *IEEE Asian Solid-State Circuits Conference (A-SSCC)*, Nov. 2021.

HONORS & AWARDS

Bronze Medal Award, Macronix Golden Silicon Award

Aug. 2021

- Served as a team leader and competed with 200+ teams

RESEARCH & WORK EXPERIENCE

Research Assistant

Aug. 2021 – Present

Digital Circuits and Systems Lab, National Taiwan University

Taipei, Taiwan

- Advisor: Prof. Chia-Hsiang Yang
- Delivered the oral presentation for blind image deblurring accelerator IC in *A-SSCC* 2021

Mandatory Military Service

Apr. 2021 – July 2021

R.O.C. Army

Taiwan

- Received rifleman's and tank ammunition loader's training

Graduate Student Researcher

July 2018 – Mar. 2021

Digital Circuits and Systems Lab, National Taiwan University

Taipei, Taiwan

- Advisor: Prof. Chia-Hsiang Yang
- Designed blind image deblurring accelerator IC with **complete cell-based ASIC design flow**
- Applied the deblurring accelerator to Intel FPGA board for surgical image deblurring
- Implemented the algorithm for efficiently analyzing current signals from the sensor measuring the alcohol in gaseous state to determine the concentration

Undergraduate Student Researcher

Mar. 2018 – June 2018

Digital Circuits and Systems Lab, National Taiwan University

Taipei, Taiwan

- Advisor: Prof. Chia-Hsiang Yang
- Analyzed blind image deblurring algorithms

Electrical Engineering Intern

July 2017 – July 2018

HP

Taipei, Taiwan

- Designed compact WLAN antenna for the narrower bezel laptop
- Applied Visual Basic for Application (VBA) in Excel to collect the WLAN antenna field trials' data and generate charts automatically
- Participated in the live stream for introducing the internship program

SELECTED PROJECTS

- | | |
|---|-----------------------|
| Blind Image Deblurring Accelerator IC | Sep. 2018 – Feb. 2021 |
| <ul style="list-style-type: none"> • Implemented the chip having 2562x acceleration in full-HD image deblurring compared to Intel i7-4790 • Achieved 4x higher normalized area efficiency and 7.5x higher normalized energy efficiency than the prior design • Used less area than the state-of-the-art design despite supporting 4x larger image size and better capability of image deblurring | |
| Gas Concentration Analysis | Sep. 2018 – Dec. 2020 |
| <ul style="list-style-type: none"> • Designed digital filters for raw signals from gas sensor with MATLAB • Analyzed signals' patterns and constructed ideal signals to aid detection • Reduced the run-time by 50% for gas concentration detection with remained accuracy | |
| Stereo Matching | Sep. 2018 – Dec. 2020 |
| <ul style="list-style-type: none"> • Explored and implemented different algorithms to have the feasible stereo matching performance • Modified algorithms with various pre-processing and post-processing methods to enhance stereo matching results | |
| Webcam Controlled by Electrooculography (EOG) Signal | Nov. 2016 – Jan. 2017 |
| <ul style="list-style-type: none"> • Implemented the multi-stage filter circuit for EOG signals filtering • Applied EOG signals to control the movement of the webcam and displayed the live stream video from the webcam on the screen with Arduino board | |

SKILLS

Programming Language: Verilog, MATLAB, Python, C/C++, Latex
Hardware Design Tools: NC-verilog, Verdi/nWave, Design Compiler, Innovus, Calibre, Altera Quartus

EXTRACURRICULAR ACTIVITIES

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| Treasurer of Tainan Alumni Association
<i>National Taiwan University</i> | Sep. 2014 – Aug. 2016
<i>Taipei, Taiwan</i> |
| <ul style="list-style-type: none"> • Contacted shops of famous Tainan street food and coordinated purchases for Fucheng Week (an event for promoting Tainan's delicious food and earning funds for the association) • Supervised the income and the expenditure of the club • Applied for reimbursement of club activities' expense | |
| Electrical Engineering Department Volleyball Team
<i>National Taiwan University</i> | Sep. 2014 – June 2018
<i>Taipei, Taiwan</i> |
| Varsity Kendo Team
<i>National Taiwan University</i> | Dec. 2014 – July 2015
<i>Taipei, Taiwan</i> |