Yi-Yen Hsieh

MD501, No. 1, Sec. 4, Roosevelt Rd.,
Da'an Dist., Taipei City 106, Taiwan
+886-910-923504
D06943001@ntu.edu.tw

EDUCATION	**National Taiwan University**

Doctor of Philosophy, Graduate Institute of Electronics Engineering — Sep 2017 – present

□ Research Topics:
1) Design and implementation of a Cycle-GAN accelerator for mobile devices
2) A low-power cascaded SVM accelerator for closed-loop seizure prediction and detection system

Master of Science, Graduate Institute of Electronics Engineering — Sep 2015 – Jul 2017

□ Thesis: A Linear Regression Model with Dynamic Pulse Transit Time Features for Noninvasive Blood Pressure Prediction

Bachelor of Science, Department of Electrical Engineering — Sep 2011 – Jul 2015

WORK EXPERIENCE

Teaching Assistant

Graduate Institute of Electronics Engineering, National Taiwan University

□ Patent Opposition and Infringement — Sep 2016 – Sep 2019
□ Computer-Aided VLSI System Design — 2019 Fall / 2020 Fall
□ Digital Signal Processing in VLSI — 2021 Spring

Research Assistant

The Research Center for Information Technology Innovation, Academia Sinica — Sep 2017 – Feb 2018

□ Developed SVM and RNN-based algorithm for noninvasive real-time blood pressure prediction with limited training data for remote health monitoring systems

Intern Experience with Industrial Fellowship — Jan 2019 – Feb 2019

AI Algorithm Engineer: Intelligo Technology Inc., Taiwan

□ Developed 4 GAN-based algorithms for speech noise reduction, achieving 0.5-0.7 PESQ improvement

Machine Learning Algorithm Researcher: Sitronix Technology Corporation, Taiwan

□ Developed CNN-autoencoder-based fingerprint identification using triplet loss on NIST FCV 2000 database, achieving higher than 75% true acceptance rate (TAR)

PROJECTS

CycleGAN Accelerator Implementation (Sponsored by Qualcomm) — Mar 2019 – Dec 2019

□ This work presents the first dedicated CycleGAN accelerator with a 1.392 TOPs/W energy efficiency

ML-based EEG Signal Reconstruction — Sep 2017 – Jan 2018

□ Utilized DCNN-based spatio-temporal network to reconstruct 44-lead EEG with 16-lead EEG input signals (collaborative project with the Department of Computer Science and Information Engineering)

Noninvasive Blood Pressure Prediction (Sponsored by MediaTek) — Sep 2015 – Jul 2017

□ Developed an ML-based algorithm for noninvasive real-time blood pressure prediction with physiological signals (collaborative project with National Taiwan University Hospital)

Digital Communication IC &Wireless Bio-Sensor Network Protocol Design — Sep 2014 – Jul 2015

□ Devised and implemented end-to-end communication system simulator for biomedical IoT validation
□ Gained proficiency in FPGA and MCU co-design processes

SELECTED PUBLICATIONS

□ S.-A. Huang, **Y.-Y. Hsieh**, and C.-H. Yang, "Design optimization for ADMM-based SVM training processor for edge computing," in *Proceedings of International Conference on Artificial Intelligence Circuits and Systems (AICAS)*, May, 2021. (in process)

□ **Y.-Y. Hsieh**, Y.-C. Lee, and C.-H. Yang, "A cycleGAN accelerator for unsupervised learning on mobile devices," in *proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Oct. 2020.

□ H.-T. Chiang, **Y.-Y. Hsieh**, S.-W. Fu, K.-H. Hung, Y. Tsao, and S.-Y. Chien, "Noise reduction in ECG signals using fully convolutional denoising autoencoders," *IEEE Access*, Apr. 2019.

□ **Y.-Y. Hsieh**, C.-D. Wu, S.-S. Lu and Y. Tsao, "A linear regression model with dynamic pulse transit time features for noninvasive blood pressure prediction," in *Proceedings of IEEE Biomedical Circuits and Systems Conference (BioCAS),* Oct. 2016. (oral presentation)

TECHNICAL SKILLS

Programming Languages

□ Verilog, C/C++, Python, MATLAB, Javascript, React.js, Node.js, HTML, CSS

Tools

□ NCverilog, NLint, Quartus, Design Compiler, nWave, Innovus, Laker, PrimeTime, Git