# KUAN-LIN **CHEN**

+1(858)900-8855 | kuc029@ucsd.edu | kuanlin.me

## Research Interests

| | |
|---|---|
| **Signal Processing** | Statistical Signal Srocessing, Filtering, Signal Decomposition |
| **Machine Learning** | Deep Learning, Bayesian Learning, Reinforcement Learning |
| **Computer Vision** | Pattern Recogniction, Object Localization, Pose Estimation |

## Education

**University of California San Diego (UCSD)** *La Jolla, CA, USA*

M.S. in Electrical and Computer Engineering *Sept. 2017 - PRESENT*

- Specialization: Signal and Image Processing

**National Taiwan University (NTU)** *Taipei, Taiwan*

B.S.E. in Electrical Engineering *Sept. 2011 - Jan. 2016*

- Overall GPA 3.77 / 4.30
- Graduate Courses Taken: Advanced Digital Signal Processing, Advanced Digital System Design, Time-frequency Analysis and Wavelet Transform, Music Signal Analysis and Retrieval.

## Publications

[1] Huang, Yu-Chun and **Kuan-Lin Chen**. "Brain-Computer Interfaces (BCI) Based 3D Computer-Aided Design (CAD): To Improve the Efficiency of 3D Modeling for New Users." HCI (2017). **[pdf link]**

[2] Ming-Ying Wu, **KUAN-LIN CHEN**, AND YU-CHUN HUANG, "A SMART BRACELET: An alternative interfaces between performer and audience," *Proceedings of the 21st International Conference of the Association for Computer-Aided Architectural Design Research in Asia CAADRIA 2016*, pp. 311-319, 2016. **[pdf link]**

[3] Huang, Y. C., **Chen, K. L.**, Wu, M. Y., Tu, Y. W. and Huang, S. C. C., "Brain-Computer Interface Approach to Computer-Aided Design: Rotate and zoom in/out in 3Ds Max via imagination," *IHCI2015-Multi Conference on Science and Information Systems (MCCSIS2015) Proceedings*, 2015. **[pdf link]**

## Research Experience

**Smart Lab, University of California San Diego** *La Jolla, CA, USA*

Graduate Stduent *Nov. 2017 - PRESENT*

- Building a real-time pose estimation system using multi-stage CNN.

**Smart Interaction & Multimedia Design Lab, Tatung University** *Taipei, Taiwan*

Research Assistant *Aug. 2014 - Aug. 2016*

- Proposed a system [1, 3] to control CAD software via imagination using EEG signal.
- Built a real-time system [1, 3] which receives cognitive signals from Emotiv EPOC+ neuroheadset and perform corresponding commands on 3ds Max and Rhino.
- Proposed an audience feedback system [2] for performing art.
- Built a wearable digital system [2] to measure the conductivity on the skin and transmit the data back to backend responsive server.

**Sensortek Technology Corp. and Access IC Design Lab** *Hsinchu and Taipei, Taiwan*

Researcher for Industry-University Cooperative Research Project *July 2014 - June 2015*

- Provided research studies and biomedical signal processing techniques to Sensortek Technology Corp. on several topics including Photoplethysmography (PPG) and continuous blood pressure (CBP).

**Ministry of Science and Technology, R.O.C.** *Taipei, Taiwan*

Researcher for Undergraduate Research Project *July 2014 - Feb. 2015*

- Topic: Design and Implementation of Motion Artifact Reduction Technique for Photoplethysmography (PPG).
- Granted NTD $47,000.

**Access IC Design Lab, National Taiwan University** *Taipei, Taiwan*

Researcher for Special Project *Sept. 2013 - Feb. 2014*

- Implemented, synthesized and tested 64-point pipelined Radix $2^2$ Single-path Delay Feedback (SDF) Fast Fourier Transform (FFT) processor in RTL level using Verilog (hardware description language) and CAD tools.

# Industrial Experience

**COMDEK Industrial Corp.** *New Taipei City, Taiwan*

Full Stack Developer *June 2015 - June 2016*

- Independently developed a remote healthcare system named Central Station from scratch.
- Implemented Redis database, real-time Node.js server on Debian Linux, and client side module on MediaTek LinkIt 7688.
- Central Station is now under testing, and it will become a product in the next few years. **[pdf link]**

Part-Time System Engineer *June 2014 - June 2015*

- Built a system program based on 8051 MCU for portable pulse oximeter named MD-600P from scratch. **[pdf link]**
- Built a commercial differential counter named MD-200 based on ATmega64 for medical experiments. **[pdf link]**

# Honors & Awards

## Technical

2015 **Silver Medal Award**, Altera Innovate Asia FPGA Design Competition *International*

— Proposed a product based on FPGA which modulates the music with the accelerated signal.

2015 **Second Prize Award**, Integrated Circuit Design Contest *National*

— Ranked 2nd nationally in the cell-based digital circuit category.

2015 **Tenth Place**, IEEE Signal Processing Cup *International*

— Ranked 10th globally in motion artifact reduction of PPG signal.

## Innovation & Business

2015 **Second Prize Award**, NTU Innovation Contest *Intramural, NTU*

— Innovated and built a hardware using PPG and accelerated signal to provide a new user experience.

2013 **Selected**, Samsung Mobilers *National*

— One of 36 Mobilers in Samsung Taiwan.

# Skills

**Programming** Matlab, Python, C/C++, Verilog, HTML/CSS/JavaScript, LaTeX, Tensorflow, CUDA

**Hardware** FGPA, ASIC, MCU

**Languages** Mandarin Chinese (Native), English (Fluent)

**Game of Go** 5 dan amateur, certificated by Go Association of Republic of China