

## SUMMARY

A technophile with the passion of using computer science knowledge to improve the quality of work and life.

## SKILL

- iOS and Android app development: Java, Objective-C
- web development: Node.js, JavaScript, PostgreSQL, MongoDB, Redux.js, React.js, express.js
- Keras machine learning framework: Python

## EXPERIENCE

### Mandatory Service

Sept. 2016 - July 2017

### Emergency Services Command Center Engineer

Yulin, Taiwan

- Implemented the voice-typing system integrated into emergency command system.(100s to 20s)
- Implemented a human resource assistant ERP system and login App.(3 days to 1 day)
- Implemented a hacking CAPTCHA program for login.

### Mstar Semiconductor

Jan. 2016 - Sept. 2016

### Senior Software Engineer

Hsinchu, Taiwan

- Developed Android system stack for smart TV (Binder, service)
- Implemented electronic program guide application.
- Implemented an automatic tool for multi-language translation (Improved developing efficiency: 5hs to 1s)
- Implemented logger.(Increased debugging efficiency from 10mins to 5s)
- UML code injection.(Runtime sequence diagram for debugging)

### Industrial Technology Research Institute

July 2013 - Sept. 2015

### iOS Development Engineer (Intern)

Hsinchu, Taiwan

Smart Insulating Container with Anti-Theft Features by M2M Tracking in Proc. 2014 IEEE (iThings 2014)

- Implemented iOS monitor application, logging system, backend system for a cold-chain logistics system.
- Recognition algorithm for anti-theft.

### KerjaDulu

Nov. 2014 - July 2015

### Android Development Engineer(part-time)

Taipei, Taiwan

- [KerjaDulu Human Resource App](#): Project Starter, OOP Design, UI effect, SQLite, RESTful API, PostgreSQL.

### Campus Library

Nov. 2010 - July 2013

### MIS engineer of library services (part-time)

Chaiyi, Taiwan

- Implemented Book Finder Android App to locate books
- Implemented assistant tools of library services
- Maintained Library Services and System server

## HONORS AND AWARDS

Qualcomm award in [MobileHeros](#), [Book Finder](#)

2012

Excellent work in [ICT](#) Innovative Services, [Touch Projector](#)

2012

## EDUCATION

Master of Computer Science, National Tsing Hua University, Taiwan.

Sept. 2015

Thesis: EcoSim: A Smartphone-Based Sensor-Node Simulator with Native Sensor and Protocol-Stack Emulation

## PROJECT

- Smart Leave System (Alternative Military Service)
- EcoSim: A Smartphone-Based Sensor-Node Simulator with Native Sensor and Protocol-Stack Emulation
- An In-Situ Motion Measurement System for Underwater Sediments Tracking in Proc. 2014 IEEE International Conference on Cyber, Physical and Social Computing (CPSCom 2014)
- Touch projector
- Book Finder (Indoor location service of library)
- Gesture recognition with IoT platform based on triaxial acceleration
- Using Machine Learning to hack CAPTCHA
- Voice Recognition and Correction (ED algorithm)
- Make Desktop touchable with the cheap webcam
- Self-propelled Car

# Project Report

## Projects

### **Smart Insulating Container with Anti-Theft Features by M2M Tracking** 2014

- **Contribution:**
  - Designed a lightweight algorithm of detection about status of container on RTOS embedded platforms.
  - Developed an iOS client-side logistic app.(Logistics flow, Bluetooth 4.0 Communication mechanism )
  - Backend system (Node.js)
- **Technology skills:** iOS, embedded C, algorithm.
- **Paper:** <http://www.ece.uci.edu/~chou/pdf/chou-ithings14container2.pdf>
- **Description:**

a smart insulating shipping container with anti-theft features based on M2M communication for mutual tracking. The container includes a wireless sensor node for sensing the temperature and moisture of the interior of the container as well as the vibration and orientation to ensure integrity of the contents.

### **Touch projector** 2012

- **Contribution:** Design a vision algorithm for multiple fingertips detection.
- **Technology skills:** Vision algorithm, OpenCV, Visual C++, .NET framework.
- **Youtube:** <https://www.youtube.com/watch?v=nt4eUAXqXyk>
- **Description:**

Touch projector enables the projection to be touchable.

### **Book Finder (Indoor location service of library)** 2012

- **Contribution:**
  - Designed an AR feature, (without third party library )
  - UI and MVC implementation
- **Technology skills:** Android, Java
- **Youtube:** [https://www.youtube.com/watch?v=BvLKtrgg\\_yw](https://www.youtube.com/watch?v=BvLKtrgg_yw)
- **Description:**

Using an Indoor location system and Augmented Reality technology, Book Finder app guides users to where the book is located.

# Personal Pet Projects

## Smart Leave System

*(Alternative Military Service)* 2017

- **Technology skills:** Node.js, MongoDB .CoffeeScript, android, QRCode
- **Youtube:** [https://www.youtube.com/watch?v=H-oOH0-n7\\_4](https://www.youtube.com/watch?v=H-oOH0-n7_4)
- **Description:**

The smart leave system is an ERP system for human resource office. It uses the QRCode as a method to identify personal ID(oAuth2) and make the usage of the system easier and more intuitive.

## *EcoSim: A Smartphone-Based Sensor-Node Simulator with Native Sensor and Protocol-Stack Emulation* 2015

- **Technology skills:** iOS, Objective-C
- **Youtube:** <https://www.youtube.com/watch?v=1UUcqf0pjM0>
- **Paper:** <http://140.113.39.130/cgi-bin/gs32/hugsweb.cgi?o=dnthucdr&s=%22GH02102062590%22.id.&>
- **Description:**

The contribution of this work is a new kind of development tool support for an IoT platform. It enables developers to write code, compile using an open-source compiler, and execute it on a conventional smartphones to emulate not only the MCU but also peripheral devices. It does not require developers to actually buy and run the code on the actual embedded systems, which may be realistic but can also be more difficult due to low-level problems such as hardware errors.

## *Gesture recognition with IoT platform based on triaxial acceleration* 2015

- **Technology skills:** machine learning, python, embedded C
- **Youtube:** <https://www.youtube.com/watch?v=VInyJABrmPo>
- **Description:**

Gesture recognition by machine learning, computer can recognize the gesture by holding the small IoT platform.

## **Voice Recognition and Correction (ED algorithm)**

2017

- **Contribution:** It helps speed up the process of response to emergency calls.
- **Technology skills:** Voice Recognition,edit distance Algorithm
- **Youtube:** <https://www.youtube.com/watch?v=xZo-bpWrYIk>
- **Description:**

Use edit distance algorithm to enhance voice recognition and fetch out the geographic information.

## Machine learning (OCR) (hack CAPTCHA)

2016

- **Technology skills:** Machine learning, Vision algorithm
- **Youtube:** <https://www.youtube.com/watch?v=9ovWzlu1zy8>
- **Description:**  
Using RNN to hack CAPTCHA for automatic login.

## Make Desktop touchable with the cheap webcam

2013

- **Technology skills:** Vision algorithm, OpenCv, .NET framework
- **Youtube:** <https://www.youtube.com/watch?v=oRpueml3SzA>
- **Description:**  
Gesture recognition by computer vision algorithm; user can control the computer with cheap webcam, no need expensive hardware.

## Self-propelled Car

2014

- **Technology skills:** Vision algorithm, automation control theory, embedded platform
- **Youtube:** [https://www.youtube.com/watch?v=WJ1\\_3XRyf2k](https://www.youtube.com/watch?v=WJ1_3XRyf2k)
- **Description:**  
Self-propelled car with automation control PID algorithm.