Yu-Lun (Larry) Tsai

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EDUCATION

Carnegie Mellon University, School of Computer Science, Pittsburgh, PA — Dec 2017
Master of Science in Information Technology, Software Engineering
- Real-Time Embedded System (18648), Web Application Development (15637), Introduction to Computer System (15513), Architectures for Software Systems (17655)

National Taiwan University, Taipei, Taiwan — June 2015
Bachelor of Science in Electrical Engineering **GPA: 3.9** **(* : graduate-level courses)**
- Data Structure and Programming, Machine Learning*, Deep Learning and Structured Learning*, Artificial Intelligence*, Digital Speech Processing*, Computer Network

WORK EXPERIENCE

Research Assistant, **National Taiwan University**, Taipei, Taiwan — Sep 2014 ~ June 2016
- Explored sensing techniques and IoT solutions to assist patients during their rehabilitation treatment
- "KeDiary: Using Mobile Phones to Assist Patients in Recovering from Drug Addiction." in ACM CHI 2016

Software Engineering Intern, **Yotta Lab Technology Co., Ltd.**, Taipei, Taiwan — June 2014 ~ Sep 2014
- Built a MFC desktop software for tuning parameters of image stitching algorithms and preview
- Implemented a lane departure warning algorithm based on videos from driving recorders

SKILLS

Programming Languages C/C++, Python, Javascript, Java/Android, HTML/CSS, UNIX shell script
Development Tools Django, Bootstrap, jQuery, AWS, STM32F4, Atmel AVR

RESEARCH / SELECTED PROJECTS

Web Application: CookByYourself (Python, Javascript) — Oct 2016 ~ Dec 2016
- Designed and implemented the infrastructure of website using Django, Bootstrap, PostgreSQL, and AWS EC2
- Built a web crawler using BeautifulSoup and Selenium to collect recipes, prices, and unit conversions

Realtime Resource Reservation Framework (C, Linux Kernel, Android) — Aug 2016 ~ Dec 2016
- Implemented runtime budget enforcement by modifying the scheduling policy in kernel
- Utilized heuristic multicore scheduling policies (Best Fit, and Next Fit) to manage realtime tasks
- Built an app using Android NDK to create, modify and cancel resource reservation

KeDiary (C, Java, Android) — Sep 2015 ~ June 2016
- Built a mobile alcohol/test strip detector with an app to help doctors track patients during treatment
- Developed firmwares on STM32 to forward images from embedded camera to mobile phone
- Customized our MCU with PCB layout software and prototyped outer casing using AutoCad 123D Design

BioScope (C, Java, Android) — Sep 2014 ~ Aug 2015
- Built a flexible bandage that collects physiological data with sensors and display data on an OLED module
- Implement data transmission protocol with android using NFC and Bluetooth Low Energy

Deep Learning in Speech Recognition (C++) — Sep 2013 ~ June 2014
- Implemented feature space linear regression with DNN on raw MFCC feature for speaker adaptation
- Applied LSTM and RNNLM algorithms to construct language model for sentence recognition

Functionally Reduced And-Inverter Gates Simulator (C++) — Sep 2013 ~ Jan 2014
- Formulated circuits into direct acyclic graphs and eliminated functionally equivalent candidates
- Developed our own memory management to prevent fragmentation by overriding the new operator in C++