

Mu-An Liang (one page resume)

Phone: (970)825-6379

Email: liangvic@colostate.edu

EDUCATION

Colorado State University, Fort Collins, U.S.A | GPA: 3.45

Aug 2017 to Dec 2018

M.E. : electrical and computer engineering – computer engineering

National Yunlin University of Science and Technology, Yunlin, Taiwan

Sep 2012 to June 2016

B.S. : electronic engineering - automation engineering

SKILLS: (Advanced(A) | Intermediate (I) | Foundational (F))

- | | | |
|-----------------------------|------------------------|------------------------|
| • Java (A) | • C++ (A) | • C# (F) |
| • Linux (A) | • XScale255_eLinux (A) | • MATLAB (F) |
| • Scheduling Algorithms (I) | • Cadence Virtuoso (A) | • CAN bus protocol (I) |
| • HFSS 13.0 (A) | • Docker (F) | • Ansible (F) |

EXPERIENCES/PROJECTS

Heavy Vehicle Security-PenJ1939 - Dr. Indrakshi Ray

Aug. 2018 - Now

- Heavy vehicles are vulnerable to cyber-attack.
- PenJ1939 with Access-Controlled, Privacy-Preserving Cyber-Physical Testbed
- Modified Linux kernel iptables are assigned by Ansible to different VMware with docker. Iptables filter data to achieve Access-Controlled and Privacy-Preserving. Cyber-Physical Testbed are connected with Beagleboom and RaspberryPi to complete control system.
- The system allows users and manufacturers to have both public and private forums for vulnerabilities and exploits scripts.

Intelligent Factory - Prof. Sudeep Pasricha

Aug. - Dec. 2017

- Industry 4.0 with automatic warehouse association.
- Simulated a warehouse association with mobile vehicle, robotic arm and recognition technique.
- Developed recognition technique (based on OpenCV (C++)), modified algorithms Camshift and ANN) to control vehicle to take the certain merchandise with Raspberry Pi and Arduino connected to local server to receive the missions.
- The system can recognize tag numbers and pick the merchandise accurately. The system can do face recognition with two people and find the manager to receive the mission.

Self-made circuit analysis – Dr. Sourajeet Roy

Aug. - Dec. 2017

- Do automatic circuit analysis.
- Programmed MATLAB to generate MNA matrix/Euler and calculate AC/DC current for certain a component in the circuit.

Customized Dimmer - Contract job

Nov. - Nov. 2016

- Designed a dimmer which can be used for all 110 V AC light system. .
- Designed a AC buck converter connected to Arduino (3.3V) as a controller. Designed a AC boost converter connected to the LED bulb (110V).
- The Arduino dimmer can control the Philips 8718696823248 LED bulb with seven kinds of brightness.

Hand Rehabilitation Ball – Designed project – Prof. Shiau Y. H. et al.

Aug. - Dec. 2015

- There are only a small number of hand rehabilitation products and all of those are not intelligent.
- Designed a circuit with 6 pressure sensors and Arduino program which can detect which sensor is triggered. The Arduino will transfer the data to PC server via Bluetooth. Programed the C# PC game which can store data in the database to show the hand rehabilitation history.
- It brought our team to the finals of the Intelligent Electronic Design and Esthetics Exhibition (National competition). The project was sponsored to be published, however the patent prevented us from publishing.

Mu-An Liang (2 page resume)

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| • Java (A) | • C++ (A) | • C# (F) |
| • MATLAB (F) | • Linux (I) | • XScale255_eLinux (A) |
| • Scheduling Algorithms (I) | • Cadence Virtuoso (A) | • Code Composer Studio 5.4.0 (A) |
| • HFSS 13.0 (A) | • AutoCAD (F) | • Arduino (A) |
| • CAN bus protocol (I) | • Docker (F) | • Ansible (F) |

EXPERIENCES

Colorado State University

Heavy Vehicle Security-PenJ1939 - Dr. Indrakshi Ray

Aug. 2018 - Now

- Heavy vehicles are vulnerable to cyber-attack.
- PenJ1939 with Access-Controlled, Privacy-Preserving Cyber-Physical Testbed
- Modified Linux kernel iptables are assigned by Ansible to different VMware with docker. Iptables filter data to achieve Access-Controlled and Privacy-Preserving. Cyber-Physical Testbed are connected with Beagleboom and RaspberryPi to complete control system.
- The system allows users and manufacturers to have both public and private forums for vulnerabilities and exploits scripts.

Survey of Fault-Tolerant method in WSN - Prof. Yashwant K. Malaiya

Feb. - May 2018

- WSN are sensitive and hard to maintain a high reliability.
- Designed and summarized Fault-Tolerant method in WSN.
- Researched on fault detection, fault types, fault analysis, fault tolerance and fault recovery. Designed flow chart to distinguish the difference in fault-tolerant methods.
- Dynamically finding a new path and the cluster mechanism save more energy and achieve higher system reliability in fault tolerance method.

Intelligent Factory - Prof. Sudeep Pasricha

Aug. - Dec. 2017

- Industry 4.0 with automatic warehouse association.
- Simulated a warehouse association with mobile vehicle, robotic arm and recognition technique.
- Developed recognition technique (based on OpenCV (C++), modified algorithms Camshift and ANN) to control vehicle to take the certain merchandise with Raspberry Pi and Arduino connected to local server to receive the missions.
- The system can recognize tag numbers and pick the merchandise accurately. The system can do face recognition with two people and find the manager to receive the mission.

Survey of NoC high packet latency solving method - Prof. Sudeep Pasricha

Aug. - Dec. 2017

- The architecture of NoC has long packet latency.
- Researched on topology, switching, routing, flow control and reset solution. Designed flow chart to distinguish the difference in reducing latency.
- Modifying topology is the most customized method, which highly improves the efficiency and latency of NoC. Routing method is most flexible and can be used in many different architecture. Look-Ahead-XYZ can improve communication latency well and 3D-OASIS-NoC can also reduce latency.

Dark Silicon: Survey of solving method - Prof. Sudeep Pasricha

Aug. - Dec. 2017

- Dark silicon decreases the power efficiency.
- Researched on programming and using a different material or principle to improve efficiency.
- Modifying programs are the most popular method and more flexible. Using a different material or principle are more efficient in saving energy. Dynamic-programming of power management and DVFS can improve the power efficiency.

Self-made circuit analysis – Dr. Sourajeet Roy

Aug. – Dec. 2017

- Do automatic circuit analysis.
- Programmed **MATLAB** to generate **MNA matrix/Euler** and calculate AC/DC current for certain a component in the circuit.
- With given value of component, source current and voltage to calculate current and voltage on the component.

National Yunlin University of Science and Technology

Customized Dimmer - Contract job

Nov. – Nov. 2016

- There is no a standard dimmer for every light system.
- Designed a dimmer which can be used for all 110 V AC light system. .
- Designed a AC **buck converter** connected to **Arduino** (3.3V) as a controller. Designed a AC **boost converter** connected to the LED bulb (110V).
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Multiple-Band Wi-Fi PCB Antenna - Prof. Ming-Shing Lin

Aug. – Dec. 2012

- Single-Band Wi-Fi PCB Antenna is not useful with one frequency respond.
- Designed a new antenna with more response channels and cheaper material by **HFSS 13.0**
- Designed and dug new lumped port on the antenna to get more channel frequency with FR4 dielectric constant.
- The antenna can respond to two frequency channel with FR4 dielectric constant.

Speed up reboot - Prof. Chian C. Ho

Aug. – Dec. 2016

- Modified SWI Exception Handler by Hitool for ARM to speed up the sever rebooting.
- Removed unnecessary file checking to speed up the reboot program.
- The server reboot increased speed by 10%.

USB function modification on **XSBASE255 Linux Kernel** - Prof. Chian C. Ho

Feb. – June 2016

- Modified the USB device kernel file.
- Researched on the dev file in kernel and located USB file. Enabled and disabled certain USB port.
- The only USB port on XSBASE255 was disabled. The XSBASE255 was re-formatted.

Hand Rehabilitation Ball – Designed project – Prof. Shiau Y. H. et al.

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- There are only a small number of hand rehabilitation products and all of those are not intelligent.
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C++ projects - Prof. Chung W. Hung

Aug. – Dec. 2012

- Designed **C++** coding projects based on PWM light control, IIC and EEPROM, RTC clock and Alarm design, UART with PC connection, ADC control, trigger and reading.

HONORS AND LICENCES

- 2016 | Intelligent Electronic Design and Esthetics Exhibition (**finalist**) - National Taipei University of Technology
- 2015 | AutoCAD Certified Professional: AutoCAD 2014

ACTIVITIES

- 2018 | Public Relations of Taiwanese Student Association - Colorado State University
- 2012~2013 | Public Relations of Engineering Student Association - National Yunlin University of Science and Technology

Mu-An Liang

1500W plum street 13-K Fort Collins

(970)825-6379

liangvic@colostate.edu

Jan. 1, 2019

Dear hiring manager,

I would like to express why I am the best candidate for Apple. As an engineering student who has done several team projects, I can dive right in and adapt quickly to every circumstance. I can also work and communicate well with people from many different fields. The Apple's business operation pattern is appealing to me and I am confident that my skills will make me a valuable asset to Apple.

I have a B.S. in Electrical Engineering from National Yunlin University of Science and Technology. I worked to publish a hand rehabilitation product based on C# (coding in PC game) and Arduino (coding embedded in hardware). Although the patent problem prevented us from publishing, we learned a great deal during the project and our product was extremely successful. I have also done several projects with C++ and Linux in college.

After graduation, I worked two part-time jobs (bartender and baker) while also taking a Java class. Although I was busy, I still earned a promotion at my part-time job and completed many successful Java projects. These experiences demonstrate that I can prioritize my time properly to achieve the best result.

In my master's program, I have done several surveys and projects in different fields including VLSI, Matlab, embedded system, fault tolerance, database management, CentOS and Linux. I would be happy to discuss the details further in person.

In December 2018, I will graduate with a Master of Electrical Computer Engineering, and based on all of my experiences, I am confident that I will succeed in a job at Apple.

Please contact me at 970-825-6379 or liangvic@colostate.edu so I can discuss how

my skills can be of benefit to you. Thank you for your consideration, and I look forward to hearing from you.

Sincerely,

Mu-An Liang