

# BIN-RUEI WU

## Seeking a full time software engineering job

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## EDUCATION

### National Taiwan University

Taipei Taiwan, Aug 2019 – Sep 2021

#### M.S. degree in Communication Engineering

🎓 GPA: 4.15/4.3

- Focus on machine learning and IoT, especially unsupervised learning and computer vision.
- Related courses : Computer Vision, Human Language Processing, IoT Application System, Operating Systems.

### Zhejiang University University

Hangzhou China, Feb 2019 – Jul 2019

#### ES. College of Computer Science and Technology

🎓 GPA: 4.03/4.3

### National Chiao-Tung University

Hsinchu Taiwan, Sept 2015 – Feb 2019

#### B.S. degree in Electrical and Computer Engineering

🎓 GPA: 3.85/4.3

## WORK & TOPIC EXPERIENCE

### MediaTek Computing-AI platform

#### System Software Engineer

📅 Nov 2021 – Present

📍 Taipei

Platform's AI SDK.

- Develop off-line manual tiling mechanism, balance the utility between multi-level cache & processing-engines.
- Focus on out-standing performance & low power consumption. Improve performance to 1.4X faster and reduce 50% extra power consumption in custom's key feature, and make a distinct advantage over competitors.

Inference framework development.

- VPU backend development.
- Optimize platform inference flow, reduce sw overheads and resolve critical paths. Implement caching mechanism to reduce pre-processing at every frame, reduce 90% of inference sw-overheads.
- Framework memory management optimization, refine buffer allocate strategy reducing 30% model loading time.

Team Tool Development.

- Develop GUI tools to measure AI feature performance & power automatically. Saving more than 90% instrument manipulating times during measurements.

Custom support - key feature landing.

- Vivo X80 extremely low-lighted AINR [[web](#)] [[youku](#)]

AI SDK

Inference

Low-Power

### Graduation Institution

#### Data Science and Intelligent Network Group

📅 Aug 2019 – Sep 2021

📍 NTU, Taipei

Unsupervised Community-consensus Contrastive Clustering (graduate research)

Sep 2020 – May 2021

- We proposed a new CCCLoss and a one-staged clustering framework that can prevent contrastive model from collapse problem.
- Experimental results show that we can achieve the state-of-the-arts performance on 6 benchmark datasets.

• [[paper](#)]

• Unsupervised Learning

Deep Learning

AI

## SKILLS

- C/C++, Python, JS, Solidty.
- Platform AI inference, VPU backend, APU architecture.
- Machine Learning, Deep Learning, Unsupervised Learning, CV, NLP.
- Web Frontend (React, Bootstrap) & Backend (Django/Express/Apache).

## LANGUAGES

Chinese

Native

English

GEPT (High-Intermediate)

## OTHER INTERESTS

Baseball

Swimming

3C

## WORK EXPERIENCE

### MediaTek

#### System Software Engineer

📅 Nov 2021 – Present

- Platform's AI SDK & Inference framework development.
- Custom support - Low power AI feature landing.

### NTU

#### Teaching Assistant / Lecturer

📅 Sep 2020 – Jan 2021

- Data science course teaching assistant.
- Introduction to computer science teaching assistant & lecturer.
- Xilinx FPGA HLS workshop lecturer.

### Block Chain Team

#### R&D engineer

📅 Dec 2017 – Jan 2019

- Develop Ethereum-based block chain token (ERC-20, ERC-223, ERC-721).
- Our customers: Mr Ding Ding ([Ding](#)), Caullix bank ([USDCX](#)), panda land ([Panda](#))

## WORK & TOPIC EXPERIENCE

### Epistemology+ (project)

May 2021 – Aug 2021

- Developed a question and answer website.
- Full stack development with React, GraphQL and Node.js.
- [\[web\]](#) [\[youtube\]](#)
- [React](#) [GraphQL](#) [Node.js](#) [Web](#)

### HOHOHO intracranial Hemorrhage detection enhanced by asymmetric IOs with CNN-LSTM (project)

Dec 2020 – Jan 2021

- Detecting 5 kinds of cerebral hemorrhages: Intracerebral hemorrhage (ICH), Intraventricular hemorrhage (IVH), Subarachnoid hemorrhage (SAH), Subdural hemorrhage (SDH), Epidural hemorrhage (EDH).
- [\[paper\]](#)
- [Smart Medical](#) [Deep Learning](#) [AI](#)

### Efficient Two-Stream Action Recognition on FPGA (lab project)

Sep 2019 – Sep 2020

- We implement a two-stream VGG-7 action recognition model and port 8-bits quantized weight onto FPGA.
- Implemented with Vivado HLS 2019.1 on ZCU102.
- [\[paper\]](#) [\[youtube\]](#) [\[github\]](#)
- [FPGA](#) [Vivado HLS](#) [Edge-AI](#) [CVPR-Workshop ECV2021](#)

### Cinnamon - Document Information Extraction (project)

Sep 2019 – Feb 2020

- The challenge of shared tasks is mainly focused on information extraction, which is similar to the NER(Named Entity Recognition) task in NLP.
- Bert model prediction.
- [\[report\]](#) [\[youtube\]](#) [\[github\]](#)
- [NLP](#) [AI](#) [DS](#)

### See Motion in the dark (Extremely low-light Video Processing)

Sep 2019 – Feb 2020

- Brighten extremely low-light videos.
- Implement two models utilizing Conv-LSTM and 3DCNN respectively.
- [\[report\]](#) [\[youtube\]](#) [\[github\]](#)
- [Computer Vision](#) [Deep Learning](#) [AI](#)

## ACHIEVEMENTS



### Ministry of Education - AI cups 2019

Top 25% for the 2019 AI CUP Artificial Intelligence Analysis and Classification of Thesis(Tagging of Thesis) [Dec 2019]



### 18th MACRONIX Golden Silicon Awards

MACRONIX Golden Silicon Awards is an semiconductor design and application competition. Our project: Soil battery - fish tank and potted plant was honour to get this award. [Mar 2018]



### Ministry of Education - Innovation and entrepreneurship project: Blockchain creation fundraising platform

Our business proposal was selected as top-20 innovative and entrepreneurship project in 2018 on universal venture proposal at Ministry of Education. [Mar 2018]



### Calculus Competition Ranking 20

Calculus competition 2015FALL in NCTU, I rank first 20 of 1212 competitors. [Jun 2016]