

# Pin-Wei 'Champ' Chen

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## About

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My name is Champ, and I am a technology-driven individual who thrives on innovation and exploring new frontiers. I am known for strong leadership, communication, and out-of-the-box thinking. Technically, I specialize in image processing, self-driving vehicles and robotics, with solid expertise in Computer Vision, ISP, Deep Learning, ROS, and 3D Perception.

Key Experience Highlights:

- Served as the 3D Perception Lead for the international autonomous robotics competitions RobotX and the DARPA SubT Challenge, achieving outstanding results representing Taiwan
- Image Algorithm Engineer at MediaTek, contributing to Dimensity flagship smartphone ISP algorithm and architecture development
- Founder of InFood, developing a mobile app that integrates food journaling with intelligent information services

## EDUCATION

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**National Chiao Tung University (NCTU)**

**Hsinchu, Taiwan**

*M.S., Electrical Control Engineering (GPA: 4.19)*

*Sept. 2018 - Jan. 2020*

[Master Thesis – Generative Adversarial Network for Real-robot Missions](#)

**National Chiao Tung University (NCTU)**

**Hsinchu, Taiwan**

*B.S., Electrical and Computer Engineering (GPA: 3.8)*

*Sept. 2014 - Jun. 2020*

## WORK EXPERIENCES

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**MediaTek**

**Hsinchu, Taiwan**

*Computer Vision Algorithm Senior Engineer*

*Aug.2020 to Present*

**InFood**

**Remote**

*Funder, CEO*

*June.2020 to June.2025*

**Occupational Health & Safety Assistances Inc.**

**Remote (Outsourced project)**

*AUV Autonomy Team Lead*

*Jan.2020 to Aug.2021*

## PROFESSIONAL EXPERIENCES

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### HDR Fusion Algorithm

- The fusion algorithm combines images captured at different exposure levels into a single HDR image, ensuring that details in both highlight and low-light regions are preserved and clearly visible.

### Dynamic Range Compression Algorithm

- Developed a dynamic range compression algorithm for HDR (High Dynamic Range) imaging scenarios.
- The algorithm compresses a high-bit-depth image into a lower bit-depth format while preserving visual details and tonal information.

### Local Alignment Algorithm

- Applied block-matching techniques to align multi-frame images captured at different timestamps.
- The algorithm accounts for both global motion and local object movement to ensure accurate alignment.

### Bokeh Algorithm

- Utilized multi-camera smartphone architecture to compute depth using stereo vision algorithms, enabling DSLR-like bokeh effects through depth-based segmentation and rendering.

### MediaTek ISP Architecture

- Familiar with MTK image platform & MTK ISP architecture.

### Self-driving Vehicles

- 3D Perception: Fused Camera and LiDAR data and applied DNN models to detect obstacles and targets in 3D.
- Self-Driving: Used 3D perception with GPS/IMU for SLAM-based localization, applied A\* for path planning, and implemented a PID controller for autonomous vehicle navigation.

## TECHNICAL SKILLS

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**ISP:** MTK ISP architecture & platform, Image Processing Algorithm

**Programming:** C/C++, Python, Dart, JAVA, Kotlin, MATLAB

**Machine Learning:** PyTorch, Tensorflow, Caffe

**Robotics:** Robotic Operating System (ROS), OpenCV, PCL (Point Cloud Library)

**App Development:** Flutter, Firebase, RESTful API

## ACTIVITIES & LEADERSHIPS

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**Autonomous Vehicle Algorithm Leader, Occupational Health & Safety Assistances Inc.**

**Shanghai, China, Jan. 2020 – Aug. 2021**

- I led an autonomous driving team in an outsourced project for an environmental tech company in Shanghai, developing an Autonomous Underwater Vehicle (AUV) capable of autonomous

exploration and navigation. I directed the system architecture and technical development, integrating camera, sonar, GPS, and IMU to enable underwater self-navigation and automated environmental monitoring for pollution detection in lakes and rivers.

#### **Founder, InFood. Taiwan, June. 2020 – June. 2025**

- InFood is a food journaling mobile app providing integrated information services. I founded the InFood team and recruited 8 frontend and backend members to develop the platform together. In addition to leading the app frontend development, I also managed team operations, coordinated development roadmap and progress, and participated in startup competitions and investor pitching.

#### **DARPA Subterranean Challenge – 3D Perception Leader of Team NCTU, Pittsburgh, USA, Aug. 2019**

- The DARPA SubT Challenge is a global competition that seeks innovative autonomous solutions to rapidly map, navigate, and locate artifacts in complex, unknown underground environments under time-critical conditions.
- Team NCTU represented Taiwan as the first Taiwanese team to ever participate in a DARPA challenge.
- Achieved 7th place worldwide in the competition.

#### **2018 RobotX - 3D Perception Leader of Team NCTU, Hawaii, USA, Dec. 2018**

- The competition focuses on developing autonomous maritime systems using unmanned surface vehicles equipped with advanced sensing and perception technologies.
- I was responsible for 3D LiDAR and depth camera perception, including obstacle detection and object classification using deep neural networks.
- Team NCTU achieved 5th place in the RobotX competition — our first time participating in the event.

### **LEADERSHIPS**

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Captain of Kaohsiung Senior High School Basketball Team (2013~2014)

Administrative Assistant of Student Association of Department of Electrical and Computer Engineering (2016~2017)

Captain of Electrical and Computer Engineering Basketball Team (2016~2017)

Co-founder and Leader of National Chiao Tung University Calligraphy Club (2016~2017)

2018 RobotX 3D Perception Leader of Team NCTU (2018)