

# Wei-Hsiang (Matt) Wang

✉ mattwang44@gmail.com | 🌐 mattwang44 | 🌐 Wei-Hsiang Wang | 📄 mattwang44.dev | 📞 +886-988-211-953

## SUMMARY

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- Backend engineer and Python & Node.js developer.
- Experienced in the development of cloud-based machine learning system.
- Active contributor & project lead in the Taiwanese Python community.

## WORK EXPERIENCE

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### Umbo Computer Vision

Backend Engineer - Cloud AI Team

Oct. 2018 - Sep. 2021

Mar. 2019 - Sep. 2021

#### Human-in-the-Loop Service for Boosting Detection Accuracy (Node.js)

- Solved scalability issues by revamping the human-interacting mechanism with AWS API Gateway for WebSocket.
- Enhanced filtration logic based on a time-weighted scoring algorithm, boosting overall automation rate by 8% while achieving 98% recall rate.
- Reduced average requesting latency by 30% through optimizing MongoDB usage, such as rectifying indexes to accommodate usage patterns, refining queries for index-covered query plans, & adopting read-write separation.
- Built auditing process & affiliated Grafana dashboards, examining detection accuracy of each pipeline by leveraging excessive human resources. Enabled faster response from engineers to any performance deterioration.

#### CV Detection Services of Event-based & Stream-based Product (Python)

- Developed multiple event-filtering logic based on motion value, analysis on output masks from deep learning model, & human-examining feedback. Raised system automate rate from 40% to 90% while achieving 10x channel growth.
- Reconstructed event-based service from AWS Lambda function to an HTTP server built on FastAPI & AWS ECS.
- Improved server throughput by 20% through serving with Gunicorn, handling I/O-bounded tasks asynchronously, & leveraging FFmpeg in GIF generation, with metrics from load testing using Locust as proof.
- Delivered cross-camera human re-identification feature in stream-based product, closing a governmental contract.

#### System & Per-Camera Performance Monitoring

- Implemented ETL cronjobs deployed to AWS EKS with Helm for importing event metadata to Elasticsearch.
- Built cross-services latency tracing dashboards and affiliated alerting by leveraging New Relic Tracing & Grafana.
- Developed operational dashboard for tracking cameras with poor detection accuracy or high resource consumption.

#### Data Collection for Automatic Machine Learning Platform

- Maintained labeling platform and involved in the coordination of both in-house & out-sourcing labelers.
- Integrated AWS Lambda with Slack command for FAE/Sales to import miss-detected events to the training pipeline.

Software QA Engineer - QA team

Oct. 2018 - Feb. 2019

- Implemented a web-based panel for per-camera configuration, which is commonly used across company since then.
- Conducted automated & functional testing and supported composing the installation manual.

## EDUCATION

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### National Taiwan University

M.S., Mechanical Engineering (Research Topic: Mechanism Design & Patent Analysis)

Aug. 2016 - Aug. 2018

B.S., Mechanical Engineering

Aug. 2012 - Aug. 2016

## TECHNICAL SKILLS

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**Languages:** Python, JavaScript (Node.js)

**Backend Frameworks:** Express.js, Django, FastAPI, Flask

**Cloud Services:** AWS (EC2, S3, ECS, SQS, Lambda, API Gateway), GCP (GCE, GCS)

**Databases:** MongoDB, Redis, SQL

**DevOps:** Terraform, Serverless, GitHub Action, Jenkins, TravisCI

**Monitoring & Logging:** New Relic, Grafana, Elasticsearch, Kibana

**Others:** Nginx, Vue.js (Nuxt.js), TailwindCSS

## COMMUNITY EXPERIENCE

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### **Web Team Lead/Member, PyCon Taiwan**

*Mar. 2020 - Present*

- Led 11 volunteer developers maintaining the official website & proposal-submitting/reviewing system in Django.
- Built the frontend from the ground up with Nuxt.js replacing old Django templates for lower maintenance cost and better support of SEO & i18n.

### **Coordinator & Translator, Python Official Documents Translation (zh-TW)**

*July 2021 - Present*

- Standardized translating workflows, unified translated wordings, & hosted monthly meetups.
- Automated translation source syncing process and established CI/CD using GitHub Action.

### **Coordinator & Speaker, Deep Learning Study Group**

*Feb. 2018 - Sep. 2018*

- Held weekly meetups focusing on the convolutional neural networks (CNN) papers in computer vision domain & the model implementation in PyTorch.

### **Teaching Assistant, Google Taiwan AI Bootcamp**

*July 2018*

- Guided participants to build deep learning models in Tensorflow on Google Colaboratory.

## CERTIFICATE

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### **Google Cloud Certified Associate Cloud Engineer**

*June 2020*

### **Redis Certified Developer**

*Nov 2021*

### **HashiCorp Certified: Terraform Associate**

*Nov 2021*