Wei-Hsiang (Matt) Wang

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SUMMARY

- Python/Node.js developer and backend engineer with hands-on DevOps experience
- Experienced in the development of cloud-based machine learning systems
- Active contributor and project lead in the Taiwanese Python community

WORK EXPERIENCE

Umbo Computer Vision   *Oct 2018 - Sep 2021*

UmboCV aims at revolutionizing the surveillance industry with cloud-based AI systems for detecting human or vehicle intrusion.

Backend Engineer - Cloud AI Team   *Mar 2019 - Sep 2021*

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

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

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

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

System & Per-Camera Performance Monitoring

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

Data Collection for Autonomous Machine Learning Platform

- Maintained labeling platform and coordinated both in-house and 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*

- Produced a web-based panel for per-camera configuration that had been used intensively across the company.
- Conducted automated and functional testing while composing a series of comprehensive installation manuals.

TECHNICAL SKILLS

Languages: Python, JavaScript (Node.js)
Backend Frameworks: Django, FastAPI, Flask, Express.js
Cloud Services: AWS (EC2, S3, ECS, SQS, Lambda, API Gateway), GCP (GCE, GCS)
Databases: MongoDB, Redis, SQL
DevOps: Terraform, Serverless, GitHub Actions, Jenkins, TravisCI
Monitoring & Logging: New Relic, Grafana, Elasticsearch, Kibana
Others: Nginx, Vue.js (Nuxt.js), TailwindCSS

EDUCATION

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*

COMMUNITY EXPERIENCE

PyCon Taiwan

Lead/Member - Web Team *Mar 2020 - Present*
- Led a team of 11 volunteer developers to maintain the official website and the proposal submission/review platform in Django hosted on GCP.
- Replaced the old Django templates by rebuilding the frontend from scratch in Nuxt.js to benefit from lower maintenance cost and better support of SEO and i18n.

Python Official Documents Translation (zh_TW)

Coordinator & Translator *Jul 2021 - Present*
- Standardized translating workflows, systemized translated wordings, and hosted monthly meetups.
- Automated translation source syncing process and established CI/CD pipelines using GitHub Actions.

Deep Learning Study Group

Coordinator & Speaker *Feb 2018 - Sep 2018*
- Held weekly meetups (around 25 members) focusing on the convolutional neural networks (CNN) papers in computer vision domain & the model implementation in PyTorch.

Google Taiwan AI Bootcamp

Teaching Assistant *Jul 2018*
- Mentored participants to build deep learning models in Tensorflow on Google Colaboratory.

CERTIFICATE

Google Cloud Certified Associate Cloud Engineer *Jun 2020*

Redis Certified Developer *Nov 2021*

HashiCorp Certified: Terraform Associate *Nov 2021*