

Taoyuan Wang

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EXPERIENCE

- Software Engineer at Wing (Alphabet/ex-Google)** 10/24/2022 – Present
UAS (Uncrewed Aircraft Systems) Traffic Management (UTM) Team Palo Alto, CA
- Designed and developed distributed **real-time** applications for Google X's autonomous drone delivery initiative, advancing next-generation aviation systems with safety validated via automated end-to-end testing pipelines
 - Engineered **C++/Scaffolding** backend services using **Protocol Buffers** and **S2 Geometry Library**
 - Migrated **geospatial** data to **Google Cloud Spanner** and visualized historical fleet records using an analytical query engine on Alphabet infrastructure, enabling metric monitoring and alerting across critical systems
 - Built configuration tools and operator interfaces on **Google Maps** for annotating and enforcing 4D (3D + time) airspace restrictions, ensuring flight safety and regulatory compliance
 - Replaced legacy authentication modules with role-based configurations and **low-latency** permission checks optimized for critical operations, including pilot-initiated emergency landing commands
 - Led development of **LLM/VLA**-powered multi-drone coordination systems supporting natural language control, intuitive AI-human-robot interaction, **3D simulation** for flexible task execution and rapid scenario generation
- Software Engineer at Appen US** 10/01/2021 – 10/21/2022
Computer Vision Tools Team Sunnyvale, CA
- Led end-to-end development of AI-assisted annotation tools for **multi-modal** data (React/Three.js frontend and Flask/Spring backend), from prototype to production
 - Extended point cloud cuboid annotation to **semantics segmentation** as a side project, later adopted as a new product used by 20+ leading clients in autonomous vehicles and robotics sectors
- Software Engineer at Appen China** 04/01/2019 – 09/30/2021
Computer Vision Tools Team Shanghai, China
- Developed a localized platform for the Chinese market as the founding engineer at Appen China
 - Explored point cloud **object detection/tracking** to enhance labelling efficiency using open-source projects
 - Conducted **sensor fusion** experiments using NumPy to project 3D LiDAR points into 2D camera views based on calibration parameters (e.g., position, rotation, focal length) from client devices
 - Implemented event loggers, collaborating with UX designers and data scientists to analyze annotator behavior for training process and tools improvement, resulting in a 56% labelling costs reduction
- Software Engineer at Works Applications** 04/02/2018 – 03/29/2019
AI WORKS HUE Tech Lead Group Shanghai, China
- Built full-stack ERP solutions with Vue.js frontend and Spring/Hibernate backend
 - Explored **transformer**-based chatbot and LSTM-based OCR (Tesseract) for workflows automation
- Research Assistant at Academia Sinica** 12/13/2017 – 03/09/2018
Natural Language Processing Lab Taipei, Taiwan
- Researched conversational agents for Chinese short text and maintained large Weibo post-comment dataset
 - Implemented **Seq2Seq** with **attention** in PyTorch and applied **reinforcement learning** from human feedback (RLHF) using comment appropriateness scores as rewards
- Military Service in the Social Welfare Department** 11/10/2016 – 10/27/2017
IT Specialist for documents persistence and systems maintenance Tainan, Taiwan

EDUCATION

- National Tsing Hua University** Hsinchu, Taiwan
M.S. in Computer Science (Researched in Internet Lab) Sep 2015 – Aug 2016
- National Tsing Hua University** Hsinchu, Taiwan
B.S. in Computer Science (Exchanged to Beijing Tsinghua and Nagoya University) Sep 2010 – Aug 2015

SKILLS

Languages: Python, JavaScript, Java, C/C++
Frameworks: Flask, React/Redux, Spring, JUnit, Jest, pytest
Developer Tools: Git, Docker, Jenkins, Jupyter Notebook, PyCharm, WebStorm, IntelliJ IDEA
Libraries: NumPy and WebGL with Three.js for 3D data visualization