Anson **Wong**

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Education

The University Of Southern California
CA, U.S.A

M.S. in Computer Science — *08/2018 - 05/2020*

Related Courses: Machine Learning | Foundation of artificial intelligence | Analysis of Algorithms | Deep Learning and its Applications | Web Technologies | Robotics

The University Of Hong Kong
Hong Kong

B.S. in Computer Science — *09/2013 - 05/2018*

Related Courses: Machine Learning | Computer Vision | Computer and communication networks | Modern Technologies on World Wide Web | Artificial Intelligence | Design and analysis of algorithms | Principles of programming languages

The University of North Carolina at Chapel Hill
NC, U.S.A

One-year visiting student, Computer Science — *08/2016 - 05/2017*

Related Courses: Introduction to machine learning | Advanced machine learning | Algorithms of motion

Skills

Programming language

Advanced: Python, C++ | Intermediate: Java, C, Haskell, SQL, JavaScript, HTML, CSS

Tools

ROS, ROS2, Unreal Engine 4, Kubernetes, TensorFlow, Git, Docker, Protocol Buffers, gRPC, AWS services

Experience

GM Cruise LLC
CA, U.S.A

Senior SDE - Simulation — *09/2024 - Present*

- Work on Scenario Kit, a C++/Python toolkit that serves as the entry point for creating simulation scenarios, which utilizes protobuf and allows developers to quickly construct scenarios for many different use cases. **1)** Implement methods in C++ to support filling a scenario with default values based on custom annotation in a YAML representation. **2)** Added protobuf linting and backward compatibility automated test into the bazel build system and BuildKite CI/CD platform. **3)** Implemented versioning for the protobuf inside Scenario Kit. **4)** Refactored the entire codebase for a number of use cases, from deprecating legacy functionalities to migrating components towards using protobuf.

Amazon Web Services
CA, U.S.A

SDE | SDE II — *06/2020 - 12/2021 | 12/2021 - 09/2024*

- AWS RoboMaker — **1)** Contribute to the design and implementation of a feature that allows customers to manipulate physical simulation via ROS and Gazebo topics. Develop sample robot simulation applications for AWS RoboMaker demos in C++. **2)** Worked on Github CI/CD integration with AWS, unit test, integration test and one-click installation scripts.
- AWS SageMaker Ground Truth synthetic data – **1)** Contribute to the design and implementation of multiple components for an AWS offering that procedural generates synthetic data for machine learning, with a cloud-based infrastructure that provides high availability and scalability. Involved Unreal Engine 4 and OpenCV post-processing. **2)** Conduct internal proof-of-concept projects with internal and external customers, including Amazon Robin.
- AWS SimSpace Weaver — **1)** Expand the service to the GovCloud regions, involving infrastructural changes on the SDK packaging, publishing and testing workflow, as well as deployment pipeline. **2)** Deploy AWS CloudFront for service SDK artifacts and reduce deployment time by 94%.
- AWS Batch — **1)** Contribute to multi-container feature launch, allowing customers to efficiently process hundreds of thousands of batch and machine learning containerized computing jobs that consist of multiple containers on AWS, leveraging various kinds of scheduling and on-demand scaling mechanisms. **2)** Delivered an end-to-end AWS Batch security feature for AWS EKS, including design documentation, implementation, testing, and security review process.

Amazon Web Services

CA, U.S.A

SDE INTERN *06/2019 - 09/2019*

- AWS Robomaker — Contribute to the design and implementation of ROS2 topic statistics.

Robotic Embedded Systems Laboratory - USC Robotics Research Lab

CA, U.S.A

RESEARCH ASSISTANT *10/2018 - 05/2020*

- Implement reinforcement learning algorithms in TensorFlow for an open source reinforcement learning framework – Garage (`https://github.com/rlworkgroup/garage`).

Undergraduate Research at The University Of North Carolina at Chapel Hill (Prof. Dinesh Manocha)

NC, U.S.A

UNDERGRADUATE RESEARCH ASSISTANT, WORKING ON NOVEL CROWD SIMULATION. *09/2016 - 05/2017*

- Automated unannotated crowd videos generation. Built with synthetic agents and real-world background using simulation tool and unreal engine 4.
- Synthetic crowd dataset generation using multi-agent simulation tool and unreal engine 4.
- URL: `http://gamma.cs.unc.edu/LCrowdV/`

Projects

Training Collision Avoidance Policy in Simulation through Deep Reinforcement Learning

HKU CS FINAL YEAR PROJECT

- Used Unreal Engine 4 to train a collision avoidance policy using state-of-the-art Deep Reinforcement Learning algorithm and machine learning frameworks.
- URL: `https://ahtsan.github.io/rlbot/`

Generating Images with Few Shot Meta-Learning

USC COURSE PROJECT

- Blog: `https://medium.com/@utkarshjp7/generating-images-with-few-shot-meta-learning-25bf1d301ab0#0ff9`

Honors & Awards

2016	**Rosita King Ho Scholarship**, (Support academic outstanding student in oversea exchange)	*Hong Kong*
2015	**The Arthur and Louise May Memorial Fund Scholarship**, (Support academic outstanding student in oversea research)	*Hong Kong*
2013	**Sir Edward Youde Memorial Prizes**, (Support academic outstanding students)	*Hong Kong*
2012	**Silver Award**, Asia International Mathematical Olympiad	*Hong Kong*

11th Annual Undergraduate Research Symposium at UNC-CH

NC, U.S.A

PRESENTING "SYNTHETIC DATA FOR CROWD AND HUMAN UNDERSTANDING" *2017*

- Introduced the use of synthetic data in crowd understanding. Talked about the advantages over conventional human labelling and how it improved pedestrian detection accuracy.

Publication

MixedPeds: Pedestrian Detection in Unannotated Videos using Synthetically Generated Human-agents for Training

Paper

COAUTHOR *2017*

- Published in AAAI 2018
- URL: `https://arxiv.org/abs/1707.09100`

LCrowdV: Generating Labeled Videos for Simulation-based Crowd Behavior

Paper

COAUTHOR *2016*

- Published in ECCVW 2016 and Neurocomputing Journal
- URL: `http://gamma.cs.unc.edu/LCrowdV/`, `https://doi.org/10.1016/j.neucom.2018.08.085`

Extracurricular Activity

DARPA Robotic Challenge *CA, U S.A*

Student member for HKU Team *2015*