

# 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 Cruise's Scenario Kit, a C++/Python toolkit that utilizes protobuf. **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

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### 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

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

### 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

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### 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

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