

# Gabriel Wong

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## Experience

### Grab Holdings Inc.

Apr 20 to Nov 20

#### DATA ENGINEER

- Coordinated a team of three other members for the development and quality testing of a data warehouse by tracking progress of their assigned tasks, offering technical guidance, and performing code reviews to ensure timely delivery
- Implemented multiple ETL jobs, applying optimization methods to reduce CPU usage of several SQL jobs by 30-70%, and run time of a critical bottleneck PySpark job from 3 hours to 1 hour
- Wrote a custom SQL parser to catalog the entire organization's data lake of 9,000 source tables and 3,000 ETL jobs
- Used the parser output to create a data lineage graph with over 100,000 vertices and 180,000 edges, to allow for systematic impact management and data migration

### Grab Holdings Inc.

Sep 19 to Apr 20

#### DATA SCIENTIST (ANALYTICS)

- Built a Slack bot using microservice architecture to automate crowdsourced annotation of data for sentiment analysis, collecting 2,819 responses from 73 participants in its first two months
- Applied text analytics on the organization's SQL queries to automate the task of requirement gathering, facilitating the dimensional modelling process for a new Analytics data warehouse
- Adapted same textual model for the analysis of daily ETL queries, identifying 87 unique jobs of duplicated work, totalling 18 hours of compute per day, or US\$5,579 per month

### Taiger Singapore Pte. Ltd.

May 18 to Nov 18

#### DATA SCIENCE RESEARCH INTERN

- One of 7 students selected from over 300 applicants for the inaugural Summation Programme by SGInnovate, a deep tech accelerator
- Developed a signature extraction engine alone from scratch; used in sales demos of the company's OCR capabilities

## Education

### Singapore University of Technology and Design (SUTD)

May 16 to Aug 19

#### BACHELOR OF ENGINEERING (INFORMATION SYSTEMS TECHNOLOGY AND DESIGN)

- Computer Science major, with a specialization in Artificial Intelligence and Business Analytics
- Graduated summa cum laude with a GPA of 4.76/5.0
- Awarded the SUTD Honours List for Freshmore Terms for placing within the top 10% of the cohort

### NUS High School of Mathematics and Science

Jan 08 to Dec 13

#### DIPLOMA WITH HONOURS IN MATHEMATICS, CHEMISTRY AND PHYSICS, AND MAJOR IN COMPUTING STUDIES

- Graduated with a GPA of 4.3/5.0 (Distinction)
- Awarded the CCA Achievement Award for three consecutive years (2011 - 2013) for outstanding performance in Robotics
- Coursework: Database Design, Data Structures and Algorithms, Software Engineering, Computer Networking

## Competitions & Hackathons

2019	<b>Winner</b> , AI for Accessibility Hackathon	Hackathon
2018	<b>Most Impactful Idea Winner</b> , Startup Weekend Singapore Mega	Hackathon
2018	<b>First Place</b> , DSTA Cyber Defenders Discovery Camp	Competition
2017	<b>Best Environment Idea &amp; Best Hardware Hack</b> , What The Hack @ SUTD	Hackathon
2016	<b>Grand Prize Winner</b> , Tech-Factor Challenge	Hackathon
2016	<b>First Place</b> , DSTA Cyber Defenders Discovery Camp	Competition

## Skills

#### Programming Languages

Python, Java, SQL, HTML/CSS/JavaScript, R, C

#### Data Science and AI

Spark, Pandas, TensorFlow, Keras, PyTorch, Scikit-learn, OpenCV

#### Web and App Development

React, Vue, Flask, FastAPI, Docker

#### Web Scraping and Automation

Selenium, BeautifulSoup, Telegram bots, Slack bots

#### Electronics and Miscellaneous

Arduino, Processing, SolidWorks, ROS, 8051

## Personal Projects

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### SUTD Hostel Air-Conditioning Manager

May 19 to Jul 19

WEB SCRAPING, WEB DEVELOPMENT, TELEGRAM BOT

- Built an alert system that monitors air-conditioning credit amounts via web scraping, with over 90 active users
- Created a Telegram bot as a user interface, as well as a Vue.js dashboard for usage tracking

### One-Shot Image Recognition with Siamese Neural Networks

Apr 18 to Aug 18

COMPUTER VISION

- Experimented with one-shot image classifiers using Siamese convolutional neural network (CNN) classifiers on TensorFlow and Keras
- Created and trained models to match different handwritten signatures signed by the same owner
- Utilised synthetic images created via generative adversarial networks (GANs) to augment open-source forgery datasets

### MouseHunt (Facebook Game) Bot with CAPTCHA Solver

Jan 18 to Feb 18

WEB AUTOMATION, COMPUTER VISION, DEVOPS

- Designed and developed a Selenium-powered bot to play the Facebook game "MouseHunt"
- Circumvented anti-bot CAPTCHAs through image pre-processing with OpenCV and subsequent OCR with Tesseract
- Configured for easy deployment on both a Raspberry PI, as well as an EC2 server, through Docker containerization

## School Projects

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### OpenAI Gym: Car Racing

May 16 to Aug 19

COMPUTER VISION, REINFORCEMENT LEARNING

- Developed an imitation learning approach for reinforcement learning on PyTorch to achieve state-of-the-art scores while attaining a 90% reduction in training time
- Analyzed resulting CNN-based model using Layer-Wise Relevant Propagation to visualize spatially significant input regions
- Awarded the EPS Computer Systems AI Award alongside a \$750 cash prize for Best Project in a cohort of over 120 students

### Automated Coffee Barista

Dec 18 to Feb 19

ROBOTICS, ELECTRONICS

- Designed and built a system for automated coffee serving with a 6-axis robotic arm
- Programmed robot movements and sensor controls on a Raspberry Pi using ROS and Arduino
- Created in collaboration with SUTD Engineering faculty as their central showcase for Open House 2019, with over 4,000 visitors
- Received the Outstanding Contribution to Pillar award for their usage of the project in various subsequent public outreach events

### Chinese New Year (CNY) 2017 Street Light-Up

Dec 16 to Jan 17

WEB DEVELOPMENT

- Created a web application, allowing members of the public to send New Year greetings to a display screen
- Said screen was set up for public display in Chinatown as part of the annual CNY festive decorations, lasting 21 days
- Developed a front-end display using HTML, CSS & JavaScript, through collaboration with Kreta Ayer-Kim Seng CCC

### Interactive Wall

Jun 16 to Aug 16

ARDUINO, ELECTRONICS

- Lead programmer in a team of 3 for the Interactive Wall, creating an API to allow the team to easily design and program display patterns
- Project was displayed at Maker Faire Singapore, SUTD Learning Celebration Carnival, and WEEK7, SUTD's inaugural music festival