Gabriel Wong

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Experience

Bifrost Pte. Ltd. *Dec 20 to Present*

LITTLE BIT OF EVERYTHING

- Designed workflows for task tracking and prioritization to align engineering teams with customer needs and business goals
- Collaborated with team leads to establish engineering standards and support implementation and automation of best practices
- Maintained infrastructure as code using Terraform and Packer, to support CI/CD workflows and software deployment on AWS
- Built tools to facilitate cloud deployment of Unreal Engine projects, and set up the automation of QA processes via GitLab CI
- Worked with NASA's Mars Science Helicopter team to develop autonomous landing capabilities, utilizing synthetic data to improve landing suitability detection via an onboard camera

Grab Holdings Inc. *Apr 20 to Dec 20*

DATA ENGINEER

- Led a team of three members in the development and quality testing of a data warehouse, ensuring on-time delivery by tracking progress, offering technical guidance, and performing code reviews
- Rebuilt multiple daily ETL jobs in PySpark, applying optimization methods to reduce CPU usage of over ten 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 in Java to catalog the entire organization's data lake, including 9,000 source tables and 3,000 ETL jobs
- Utilized parser output to create a data lineage graph of all SQL tables and columns used by Grab Analytics, with over 100,000 vertices and 180,000 edges, to enable 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
- Independently built a signature extraction engine from scratch, which was used in sales demos to demonstrate their 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	**Winner**, AI for Accessibility Hackathon		*Hackathon*
2018	**Most Impactful Idea Winner**, Startup Weekend Singapore Mega		*Hackathon*
2018	**First Place**, DSTA Cyber Defenders Discovery Camp		*Competition*
2017	**Best Environment Idea & Best Hardware Hack**, What The Hack @ SUTD		*Hackathon*
2016	**Grand Prize Winner**, Tech-Factor Challenge		*Hackathon*
2016	**First Place**, DSTA Cyber Defenders Discovery Camp		*Competition*

Personal Projects

Generative Art
GRAPHICS, VISUALIZATION

Present

- Exploring generative art concepts and techniques by utilizing Python, Blender, and OpenGL
- Building an interactive gallery with Next.js and Three.js to explain and demonstrate learnings in a dynamic way

SUTD Hostel Air-Conditioning Manager
WEB SCRAPING, WEB DEVELOPMENT, TELEGRAM BOT

May 19 to Jul 19

- Built an alert system that monitors air-conditioning credit balance via web scraping, with over 300 monthly 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
COMPUTER VISION

Apr 18 to Aug 18

- 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 Bot with CAPTCHA Solver
WEB AUTOMATION, COMPUTER VISION, DEVOPS

Jan 18 to Feb 18

- 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

OpenAI Gym: Car Racing
COMPUTER VISION, REINFORCEMENT LEARNING

May 16 to Aug 19

- 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
ROBOTICS, ELECTRONICS

Dec 18 to Feb 19

- 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
WEB DEVELOPMENT

Dec 16 to Jan 17

- 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
ARDUINO, ELECTRONICS

Jun 16 to Aug 16

- 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