# Ong Yong Zheng | CV

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Doctor of Philosophy student at National University of Singapore starting Ph.D studies on August 2019. Strong interest in machine learning and neural networks, specifically on applying deep learning for operator learning.

## Education

### Academic Qualifications

**National University of Singapore** — **Singapore**
*Doctor of Philosophy in Science* — *2019–Present*

**National University of Singapore** — **Singapore**
*Bsc. (Hons) of Science, Major in Applied Mathematics and Minor in Computer Science* — *2015–2019*

## Publications

### Preprint

**CASS: Cross Adversarial Source Separation via Autoencoder [pdf] [code]**
*Yong Zheng Ong, Charles K. Chui, Haizhao Yang* — *May 23, 2019*

### Published

**VG-GAN: Conditional GAN Framework for Graphical Design Generation**
*Yong Zheng Ong, Lilei Zheng, Chaowei Feng, Kang Song* — *October 16, 2022*
(To Appear) 29th IEEE International Conference on Image Processing, IEEE ICIP, 2022

**Integral Autoencoder Network for Discretization-Invariant Learning [pdf] [code]**
*Yong Zheng Ong, Zuowei Shen, Haizhao Yang* — *March 30, 2022*
Journal of Machine Learning Research, 2022

**Generative imaging and image processing via generative encoder [pdf] [code]**
*Yong Zheng Ong, Haizhao Yang* — *October 30, 2021*
Inverse Problems and Imaging, 2022

**Digital Rock Image Inpainting using GANs [pdf]**
*Yong Zheng Ong, Nan You, Yunyue Elita Li, Haizhao Yang* — *September 30, 2020*
SEG Technical Program Expanded Abstracts, 2020

# Professional Experience

## Current Position

**Shopee Singapore Pte Ltd** ................................................................. **Singapore**
*Shopee Postgraduate Programme Candidate* ................................................. *Aug 2019–Present*

As part of the Industrial Postgraduate Programme, I am working at Shopee in concurrent with my PhD studies in National University of Singapore. Under this programme, I successfully implemented an API which automatically generates patterned backgrounds for product banners, which removes the need for manual design work to design product banners for campaigns. I have also been actively involved in developing numerous backbones for the core services in the Computer Vision, e.g., a Swin Transformer backbone which uses unsupervised learning to learn a feature backbone using the Shopee product images, which are used for wide-ranging applications from classification to segmentation tasks.

## Previous Position

**National University of Singapore School of Computing** ........................... **Singapore**
*Research Assistant Internship* ................................................................. *May 2018–Jul 2018*

During summer holidays for the 3rd year of my course I spent 2.5 months working on a research project in the NUS School of Computing. My project was on Formal Verification of Smart Contracts, specifically for Tezos network, a blockchain network which, in contrast to popular blockchains, uses a stack based language for writing Smart Contracts. I successfully devised a method on modelling the stack based language in HIP/SLEEK, which could then be used to verify the specifications of the contract. Taking on this role has allowed me to learn a foreign programming language, expanding my knowledge on programming skills. This project was supervised by Associate Professor Chin Wei Ngan (NUS Department of Computer Science).

**National University of Singapore School of Computing** ........................... **Singapore**
*Teaching Assistant* ............................................................................. *Aug 2017–May 2018*

Due to my excellent grades for CS1020E Data Structures and Algorithms 1 which I took as an undergraduate, I was invited by the module coordinator to become a teaching assistant for the module. I worked for 2 semesters as a teaching assistant, where my responsibilities were setting tutorial questions, conducting a 2 hour tutorial for the students every week, as well as grading lab assignments and carrying out administrative duties. Taking such a role in conjunction with my studies have further enhanced my time management skills. The module coordinator was Senior Lecturer Dr. Low Kok Lim (NUS Department of Computer Science).

**Uber Technologies, Inc.** .................................................................... **Singapore**
*Analytics Intern* ................................................................................ *May 2017–Aug 2017*

I worked for 3 months over the summer holidays of my 2nd year Undergraduate course in NUS as an intern in Uber Singapore. I was offered this role after my contributions during my part time employment previously as a telemarketer in Uber. My roles were to work with teams to develop sheets and metrics, as well as assist my superiors with writing of SQL queries for data extraction and analysis to come up with Incentives and Promotion plans for drivers. My achievements were developing sheets for telemarketers which automated time consuming processes for the team, as well as automating incentive payment process for Lion City Rentals which saved a lot of time for the superiors.

**Uber Technologies, Inc.** .................................................................... **Singapore**
*Temporary Customer Service (Call Centre)* ............. *Jun 2016–Aug 2016, Dec 2016–Jan 2017*

I spent a few months during summer and winter holidays of my first year in NUS working as a telemarketer at Uber Singapore, where I follow up on customer leads and arrange Uber appointments with the customers. I also worked on assisting drivers with complaints and enquiries as well as resolve issues and doubts. My performance during the summer holidays led me to be invited back to continue working during the winter holidays. During my time there, I also developed a script which automated the process of creating daily summary reports and emailing directly to the superiors, which largely increased the efficiency of the team. In recognition of this contribution and technical skills, I was invited by my superior to work as an analytics intern in the following summer holidays.

○ **Opennet** **Singapore**
*Network Operations Centre* *Dec 2012–Mar 2013*

During the December holidays after Junior College, I worked in the Network Operations Centre at Opennet. My duties were to handle client requests on installation problems of fibre box in households. We were also required to collaborate between Contractor and Telecommunications Provider regarding fibre box issues. During my time there, I learnt many important communications skills which would help me immensely for subsequent jobs in Uber.

## Invited Presentations

○ **VG-GAN: Conditional GAN Framework for Graphical Design Generation** **To Appear**
*Presenter: Yong Zheng Ong* *October 16-19, 2022*

29th IEEE International Conference on Image Processing, IEEE ICIP, 2022

○ **Discretization-Invariant Operator Learning [detail] [slide]**
*Presenter: Yong Zheng Ong* *September 28, 2022*

MS71 Mathematical Theories of Deep Learning for PDEs in Scientific Computing, SIAM MDS22, 2022

○ **Digital Rock Image Inpainting using GANs [detail] [video]**
*Presenter: Yong Zheng Ong* *October 13, 2020*

SEG Technical Program Expanded Abstracts, 2020

## Technical and Personal skills

○ **Programming Languages:** Proficient in: Python, Matlab, TeX, SQL.

○ **Machine Learning Skills:** Proficient in: PyTorch, Tensorflow, scikit-learn, PBS job submission for HPC, Apache Spark.

○ **General Business Skills:** Good presentation skills. Works well in a team. Bilingual - proficient in both English and Mandarin.