ZHI QIN TAN

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EDUCATION

King's College London — *London, United Kingdom*
PhD in Dental and Health Science Research — *Oct 2024 - Apr 2027 (Expected)*
- Expected to finish in April 2027

University of Surrey — *Guildford, United Kingdom*
PhD in Computer Science — *Apr 2023 - Sep 2024*
- Transferred to King's College London

Universiti Malaya — *Kuala Lumpur, Malaysia*
B.S. in Computer Science (Artificial Intelligence) — *Sep 2017 - Mar 2021*
- CGPA: **3.96/4.00** (First Class Honours with Distinction)
- Held executive roles & won national-level programming competitions (see Awards Highlights & Community Service)

IELTS Academic
*Overall Score: **8.0/9.0*** — *14th August 2022*

Malacca Matriculation College — *Malacca, Malaysia*
Module 1 (Science) — *Jun 2016 - Jun 2017*
- CGPA: **4.00/4.00**
- Major: Mathematics, Physics, Chemistry, Biology

PUBLICATIONS

1. **Text in the dark: Extremely low-light text image enhancement**
   Che-Tsung Lin, Chun Chet Ng, **Zhi Qin Tan,** Wan Jun Nah, Xinyu Wang, Jie Long Kew, Pohao Hsu, Shang Hong Lai, Chee Seng Chan, Christopher Zach.
   Signal Processing: Image Communication, vol. 130, pp. 117222, Jan. 2025 [doi]
2. **Bayesian Detector Combination for Object Detection with Crowdsourced Annotations**
   Zhi Qin Tan, Olga Isupova, Gustavo Carneiro, Xiatian Zhu, Yunpeng Li.
   ECCV 2024, Milan, Italy, Oct. 2024
3. **When IC meets text: Towards a rich annotated integrated circuit text dataset**
   Chun Chet Ng, Che-Tsung Lin, **Zhi Qin Tan**, Xinyu Wang, Jie Long Kew, Chee Seng Chan, Christopher Zach.
   Pattern Recognition, vol. 127, pp. 110—124, Mar. 2024 [doi]
4. **Rethinking Long-Tailed Visual Recognition with Dynamic Probability Smoothing and Frequency Weighted Focusing**
   Wan Jun Nah, Chun Chet Ng, Che-Tsung Lin, Yeong Khang Lee, Jie Long Kew, **Zhi Qin Tan**, Chee Seng Chan, Christopher Zach, Shang-Hong Lai.
   IEEE ICIP 2023, Kuala Lumpur, Malaysia, Oct. 2023 [Proceedings]
5. **Protecting Recurrent Neural Network by Embedding Keys**
   Zhi Qin Tan, Hao Shan Wong, Chee Seng Chan.
   In *Digital Watermarking for Machine Learning Model: Techniques, Protocols and Applications*, Singapore: Springer, 2022, pp. 167—189.
6. **An Embarrassingly Simple Approach for Intellectual Property Rights Protection on Recurrent Neural Networks**
   Zhi Qin Tan, Hao Shan Wong, Chee Seng Chan.
   AACL-IJCNLP 2022, Online, Taiwan, Nov. 2022 [Proceedings]

ACADEMIC SERVICE

➢ **Instructor and Organizer | Python Workshop for Beginner** (2018)
- Organised a one-time Python workshop to teach beginners from **various academic backgrounds** the **basics of programming** with Python.

- **Prepared teaching material** and conducted the workshop.

➢ **Reviewer**
- **AACL-IJCNLP (2022)**
- **TPAMI (2023)**
- **Neurocomputing (2023)**
- **ACL (2024)**

➢ **Presented my first research project [1] at Bellairs Workshop on Machine Learning and Statistical Signal Processing for Data on Graphs (2024)**

WORK EXPERIENCE

Datium Insights *Kuala Lumpur, Malaysia*

Senior Data Scientist *Jul 2022 – Mar 2023*

- Finished developing **TruckVal, BikeVal and SalvageVal** (valuation models for trucks, motorcycles, and salvage vehicles) and successfully **achieved the goal** of valuing at least **70%** of assets with similar or better performance in terms of mean absolute error (MAE) compared to a human expert valuer.
- **Mentored** an intern from the data science team.

Data Scientist *June 2021 - Jul 2022*

- Worked on improving **InstantVal (LightGBM)** model which is also used in **PricesPeoplePay** product and successfully improved model by at least 100 MAE. Redesigned target encoder to use multi-level mean instead of the overall mean for certain categorical features. Implemented known parent logic so that the model can predict new vehicle variants based on its predecessor in lineage.
- Working on a variation of **InstantVal** called **IndustrialVal** that focuses on valuing industrial assets such as trucks, trailers, earthmoving assets, and motorcycles. **IndustrialVal** is currently in the development stage and can perform **better** than human valuer in certain segments.
- Working on a variation of **InstantVal** called **SalvageVal** that focuses on valuing salvage assets. **SalvageVal** is currently in the development stage and can perform **better** than human valuer in certain segments.
- **Refactored and cleaned up** a few repositories and created a common valuation library to be used across all future projects.
- **Main technical lead** for the first version of **AutoPredict (LightGBM)** model that predicts the residual value of vehicles with up to 98% coverage and 2500 MAE. Collaborated with Australian team to understand the task and business requirements.

Data Scientist (Part Time) *Mar 2020 – May 2021*

- **Trained** and **built** a pipeline for license plate recognition (**MaskedRCNN & YOLO** with **Tensorflow**).
- **Designed** a dashboard for monitoring and interpreting **InstantVal** model with **SHAP** analysis and historical data analysis.

Data Scientist Intern *Aug 2019 - Feb 2020*

- **Proposed** an unsupervised clustering method (Feature extraction with **InceptionV3 & MobileNet** > **UMAP** dimensionality reduction > **DBSCAN** Clustering) to create training dataset for supervised learning from different types of vehicle images.
- **Developed** end-to-end pipeline for vehicle colour detection including processes such as segmenting vehicles (**MaskedRCNN**), querying top colours in different colour spaces, predicting RGB values from vehicle paint name (**Bi-LSTM**), and predicting colours from RGB values (**XGBoost**).
- **Built** several supervised learning models (**Tensorflow**/**Keras**): vehicle image, vehicle make, vehicle body type classification, etc.

Centre of Image and Signal Processing (CISiP) Lab, Universiti Malaya *Remote*

Part Time Research Assistant *Feb 2022 – Aug 2023*

- Led a research project about protecting intellectual property rights of recurrent neural networks (See publication below)
- Collaborated with other senior lab members supervised by Dr Chan Chee Seng from Universiti Malaya and/or Che-Tsung Lin from Chalmers University of Technology on projects such as:
  - Integrated circuit text detection dataset with aesthetic annotations
  - Low-light image enhancement
  - Breast cancer calcification detection on medical computerized tomography (CT) scan 3D images

Tapway *Selangor, Malaysia*

AI Developer *Jul 2018 – Nov 2018*

- Worked on developing several AI models including face recognition and car plate recognition (**Tensorflow**).

Universiti Malaya *Kuala Lumpur, Malaysia*

Teaching Assistant (total of 8 classes, each 6-month long, covering Java, Data Structure, and Networking) *Sep 2018 - Sep 2020*

AWARDS HIGHLIGHTS

- ➢ **[National] E-Genting Bug Hunt Competition** – 1st place (2018), 3rd place (2019)
- ➢ **[National] ACM-ICPC Competitive Programming Competition (Malaysia)** - 2nd Place (2018), 2nd Place (2019)
- ➢ **[National] E-Genting Programming Competition** - 3rd place (2018), 2nd place (2019)
- ➢ **[National] F-Secure Intervarsity Cyber Security Competition** - 2nd Place (2018), 2nd Place (2019)
- ➢ **[National] KPMG Cyber Security Competition** – 2nd Place (2019)

SPOKEN LANGUAGES

English, Mandarin, Bahasa Melayu (Malay) - able to speak & write fluently.
Spanish – CEFR A2.

SIDE PROJECTS

Perodua QC Inspection System

Remote

Full Stack Engineer *Sep 2018 - Aug 2019*

- Worked with a team of 5 students to build a **complete system** for QC inspection and successfully **transformed** the vehicle inspection process flow from manual labour operation to a computer-aided operation.
- 2-part system: 1 mobile app (Java) for inspectors to take photos and book in details of vehicles using Panasonic Toughpad FZN1; 1 PC software (Python) for processing and checking inspection results.

COMMUNITY SERVICE

- ➢ **Deputy Director | University of Malaya Programming League** (2018)
  - **Directed a team of 20+ volunteers** in hosting the annual programming competition in the university to encourage students to improve on programming and problem-solving skills.
  - Besides assisting in overseeing the whole project, I also **designed** a few competition **questions** for the closed category.
- ➢ **Multimedia and Technical Department | Feskum (Convocation Ceremony of Universiti Malaya)** (2017)
- ➢ **Publicity and Marketing Department | FaceHack [AI Hackathon]** (2017)
  - Worked closely with sponsors and created promotional materials such as posters and short films.