Ziqiang Zheng

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EDUCATION

Ph.D. in Computer Science and Engineering   Hong Kong, China
Hong Kong University of Science and Technology (HKUST).   2021.08–2025.08

Bachelor degree in Electronic Engineering   Qingdao, Shandong
College of Information Science and Engineering, Ocean University of China (**985/211**).   2015.09–2019.06
- GPA: 3.21/4.0; Rank: 10/57.
- Final year research thesis project: One-shot image-to-image translation (supervised by **Prof. Haiyong Zheng** and **Prof. Zhibin Yu**), final rank: **A**.
- Research interest: computer vision, machine learning, biomedical image analysis.

RESEARCH EXPERIENCE

Ph.D. in Computer Science and Engineering   HKUST, Hong Kong, China
supervised by **Prof. Sai-Kit Yeung** of HKUST.   2021.08–2025.08
- Foundation Models: LLM and MLLM
- Semantic SLAM and 3D Reconstruction
- Controllable Image Synthesis and Domain Adaptation
- Self-supervised Learning

Visiting Student   KAUST, Saudi Arabia
supervised by **Prof. Manuel Aranda** and **Prof. David Suggett** of KAUST.   2024.08–2025.06
- Marine Foundation Models
- Coral Reef Semantic Segmentation and Semantic Coral 3D Map

Research Assistant   Chengdu, Sichuan
Research assistant supervised by **Prof. Yang Yang** of Center for Future Media of UESTC.   2020.10–2021.09
- Deepfake generation and detection.
- Image steganography

UISEE Research Engineer   Shanghai
Research engineer supervised by **Prof. Jianbo Shi** of Upenn.   2019.09–2020.10
- Autonomous driving at adverse conditions: promote the performance of **Localization**, **Semantic segmentation** and **Object detection**. Presentation.
- **VSLAM** and **3D reconstruction**: **10%** improvement of localization precision on ORB-SLAM2. 3D point cloud reconstruction based on **Colmap** and **pseudo-lidar** generation.
- **Unsupervised image retrieval**: adopt contrastive learning to extract domain-agnostic representations.

UISEE Internship   Nanjing, Jiangsu
Research internship supervised by **Prof. Jianbo Shi** of Upenn.   2019.05–2019.08
- Property Tunable Image Manipulation with Self-Generated Supervision.

NAIST Internship (NARA Institute of Science and Technology)   Nara, Japan
Visiting student supervised by **Dr. Yang Wu** of **Robotics Vision International Lab**.   2018.09–2018.11
- Asymmetric image encryption and object reshaping.

Selected Publications

- **Z. Zheng**, D. Wong, B. Son, J. Shi, S. Yeung. CoralSRT: Revisiting Coral Reef Semantic Segmentation by Feature Rectification via Self-supervised Guidance. IEEE/CVF International Conference on Computer Vision (ICCV), 2025.

- **Z. Zheng**, Y. Chen, H. Zeng, T. Vu, B. Son, S. Yeung. MarineInst: A Foundation Model for Marine Image Analysis with Instance Visual Description. European Conference on Computer Vision (ECCV), 2024. (**Oral** Paper: **200/8585**) Website.

- **Z. Zheng**, H. Liang, B. Son, Y. Wong, P. Jr, A. Chui, S. Yeung. CoralSCOP: Segment any COral Image on this Planet. IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024. (**Highlight** Paper: **324/11532**) Website.

- **Z. Zheng**, Y. Hu, Y. Bin, X. Xu, Y. Yang, H. Shen. Component Aware Image Steganography via Adversarial Global-and-Part Checking. IEEE Transactions on Neural Networks and Learning Systems (TNNLS), 2022. Code.

- **Z. Zheng**, Y. Wu, X. Han, J. Shi. ForkGAN: Seeing into rainy night. European Conference on Computer Vision (ECCV), 2020. (**Oral** Paper: **102/5150**) Code.

Publications

- D. Wong, **Z. Zheng**‡, M. Zhang, D. Suggett, S. Yeung. CoralSCOP-LAT: Labeling and Analyzing Tool for Coral Reef Images with Dense Mask. Ecological Informatics. 2025.

- **Z. Zheng**, H. Liang, Y. Xie, Z. Yu, S. Yeung. CoralVOS: Dataset and Benchmark for Coral Video Segmentation. Website. Code. CVAUI-AAMVEM workshop of IEEE/CVF International Conference on Computer Vision (ICCVW), 2025.

- R. Liu*, H. Wu*, **Z. Zheng**, C. Wei, Y. He, R. Pi, Q. Chen. VideoDPO: Omni-Preference Alignment for Video Diffusion Generation. IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2025.

- H. Zeng, J. Li, **Z. Zheng**, Z. Xiong. All-in-One Image Compression and Restoration. Winter Conference on Applications of Computer Vision (WACV), 2025 (**Oral** Paper).

- J. Zhang, J. Zhang, Y. Li, R. Pi, R. Pan, R. Liu, **Z. Zheng**, T. Zhang. Bridge-Coder: Transferring Model Capabilities from High-Resource to Low-Resource Programming Language. Annual Meeting of the Association for Computational Linguistics Findings (ACL Findings), 2025.

- Y. Xie, L. Kong, K. Chen, **Z. Zheng**, X. Yu, Z. Yu, B. Zheng. UVEB: A Large-scale Benchmark and Baseline Towards Real-World Underwater Video Enhancement. IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024. Code.

- **Z. Zheng**, H. Liang, F. Wut, Y. Wong, A. Chui, S. Yeung. HKCoral: Benchmark for Dense Coral Growth Form Segmentation in the Wild. IEEE Journal of Oceanic Engineering (JOE), 2024.

- **Z. Zheng**, Y. Chen, B. Son, Y. Wu, S. Yeung. Cross-Domain Autonomous Driving Perception using Contrastive Appearance Adaptation. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023.

- **Z. Zheng**, Y. Chen, B. Son, S. Yeung. CompUDA: Compositional Unsupervised Domain Adaptation for Semantic Segmentation under Adverse Conditions. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023.

- C. Li*, **Z. Zheng***, Y. Bin, G. Wang, Y. Yang, X. Li, H. Shen. Pixel Bleach Network for Detecting Face Forgery under Compression. IEEE Transaction on Multimedia (TMM), 2023.

- **Z. Zheng**, Y. Cheng, Z. Xin, Z. Yu, B. Zheng. Robust Perception under Adverse Conditions for Autonomous Driving based on Data Augmentation. IEEE Transactions on Intelligent Transportation Systems (TITS), 2023.

- Z. Ma, **Z. Zheng**, J. Wei, X. Wei, Y. Yang, H. Shen. Open-Scenario Domain Adaptive Object Detection in Autonomous Driving. ACM Multimedia (ACM MM), 2023.

- Z. Ma, **Z. Zheng**, J. Wei, Y. Yang, H. Shen. Instance-Dictionary Learning for Open-World Object Detection in Autonomous Driving Scenarios. IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2023.

- **Z. Zheng***, H. Ren*, Y. Wu, W. Zhang, H. Lu, Y. Yang, H. Shen. Fully Unsupervised Domain-Agnostic Image Retrieval. IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2023.

- H. Ren*, **Z. Zheng***, Y. Wu, H. Lu, Y. Yang, S. Yeung. ACNet: Approaching-and-Centralizing Network for Zero-Shot Sketch-Based Image Retrieval. IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2023. Code.

- **Z. Zheng***, Z. Xin*, Z. Yu, S. Yeung. Real-time GAN-based Image Enhancement for Robust Underwater Monocular SLAM. Frontiers in Marine Science, 2023.

- **Z. Zheng***, Y. Bin*, X. Lv, Y. Wu, Y. Yang, H. Shen. Asynchronous generative adversarial network for asymmetric unpaired image-to-image translation. IEEE Transaction on Multimedia (TMM), 2022.

- **Z. Zheng**, Z. Yu, W. Yang, H. Zheng, B. Zheng, M. Lee. Generative Adversarial Network with Multi-Branch Discriminator for Cross-Species Image-to-Image Translation. Neural Networks (NN), Vol.141, pp355-371, 2021.

- Z. Wang, D. Zhou, **Z. Zheng**. Direct Sparse Stereo Visual-Inertial Global Odometry. International Conference on Robotics and Automation (ICRA), 2021.

- **Z. Zheng**, Z. Yu, H. Zheng, Y. Yang, H. Shen. One-Shot Image-to-Image Translation via Part-Global Learning with a Multi-adversarial Framework. IEEE Transaction on Multimedia (TMM), DOI: 10.1109/TMM.2021.3053775, 2021.

- F. Yang, X. Chang, C. Dang, **Z. Zheng**, S. Sakti, S. Nakamura, Y. Wu. ReMOTS: Self-Supervised Refining Multi-Object Tracking and Segmentation. BMTT Workshop of 2020 Conference on Computer Vision and Pattern Recognition (CVPRW 2020), pp1-4, 2020.

- **Z. Zheng**, H. Zheng, Z. Yu, Z. Gu, B. Zheng. Unpaired Photo-to-Caricature Translation on Faces in the Wild. Neurocomputing, Vol.355, pp71-81, 2019. Code.

- C. Wang, H. Zheng, Z. Yu, **Z. Zheng**, B. Zheng, N. Wang. Discriminative Region Proposal Adversarial Networks for High-Quality Image-to-Image Translation. European Conference on Computer Vision (ECCV), pp770-785, 2018. Code.

- **Z. Zheng**, J. Zhang, T. Vu, S. Diao, Y. Wong, S. Yeung. MarineGPT: Unlocking Secrets of Ocean to the Public. Arxiv. Code.

∗ denotes **equal contribution**. ‡ denotes **corresponding author**.

Scholarships and Prizes

- 2nd place for Maritime Computer Vision (MaCVi) Workshop — 2023
- AEON Scholarship Award — 2018
- JASSO internship scholarship — 2018
- Future Cup College AI challenge image algorithm group (9th of 273) — 2018
- Silver medal of Kaggle competition (91/2293, 3.97%), [Website](#) — 2017
- Qingdao hacker marathon, Best Newcomer Award (1/150) — 2017
- Tiantai Scholarship Award — 2016

Skills

- **Programming**: Python, C/C++, JAVA, MATLAB, LaTeX, Bash, Docker and Linux
- **DL framework**: Caffe, TensorFlow, Pytorch and Keras
- **English**: **GRE** 326+4; **TOELF** 91

Hobbies

- **Sports**: Basketball, Swimming and Tennis
- **Cooking**
- **Cycling and Mountain Hiking**