Ziqiang Zheng

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EDUCATION

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

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. candidate Hong Kong, China
supervised by **Prof. Sai-Kit Yeung** of Hong Kong University of Science and Technology (HKUST). 2021.08–present

- Foundation Models: LLM and MLLM
- Semantic SLAM and 3D Reconstruction
- Controllable Image Synthesis and Domain Adaptation
- Self-supervised Learning

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.

Publications

- **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.

- 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. 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**, 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. 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, 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.

- **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.

- **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.

Manuscripts

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

- **Z. Zheng**, Y. Xie, H. Liang, Z. Yu, S. Yeung. CoralVOS: Dataset and Benchmark for Coral Video Segmentation. Website. Code.

- H. Liang*, **Z. Zheng***, Z. Ma, S. Yeung. MarineDet: Towards Open-Marine Object Detection. Arxiv. Website.

∗ denotes **equal contribution**.

Scholarships and Prizes

- 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**