# Yu CAI

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PhD Candidate @ HKUST
Hong Kong SAR, China

## EDUCATION

**The Hong Kong University of Science and Technology (HKUST)** 2022.08 - present
Pursing Ph.D. in Electronic and Computer Engineering. CGA: 3.94/4.3
Advised by Prof. Kwang-Ting Cheng (IEEE Fellow) & Prof. Hao Chen

**Huazhong University of Science and Technology (HUST)** 2018.09 - 2022.06
B.Eng. in Electronic and Information Engineering. (**Excellent Engineer Program**) GPA: 3.93/4.0
Outstanding Undergraduate Thesis: Research on Unsupervised Anomaly Detection in Chest X-Rays.
Advised by Prof. Xin Yang

## RESEARCH TOPICS

Anomaly Detection in Medical Images; Computational Pathology; Model Compression.

## SELECTED PUBLICATION

Full list in Google Scholar: Link

1. **Yu Cai**, Weiwen Zhang, Hao Chen, Kwang-ting Cheng. "MedIAnomaly: A comparative study of anomaly detection in medical images." *Medical Image Analysis*, 2025. (**MedIA, IF: 10.7**)
2. **Yu Cai**, Hao Chen, Kwang-ting Cheng. "Rethinking Autoencoders for Medical Anomaly Detection from A Theoretical Perspective." *The 27th International Conference on Medical Image Computing and Computer Assisted Intervention **(MICCAI)***, 2024.
3. **Yu Cai**, Hao Chen, Xin Yang, Yu Zhou, Kwang-ting Cheng. "Dual-distribution discrepancy with self-supervised refinement for anomaly detection in medical images." *Medical Image Analysis*, 2023. (**MedIA, IF: 13.828**)
4. **Yu Cai**, Hao Chen, Xin Yang, Yu Zhou, Kwang-ting Cheng. "Dual-Distribution Discrepancy for Anomaly Detection in Chest X-Rays." *The 25th International Conference on Medical Image Computing and Computer Assisted Intervention **(MICCAI)***, 2022. Early Accept (Acceptance rate: 13%).
5. Jiabo Ma*, Zhengrui Guo*, Fengtao Zhou, Yihui Wang, Yingxue Xu, Jinbang Li, Fang Yan, **Yu Cai**, Zhengjie Zhu, Cheng Jin, Yi Lin, Xinrui Jiang, Chenglong Zhao, Danyi Li, Anjia Han, Zhenhui Li, Ronald Cheong Kin Chan, Jiguang Wang, Peng Fei, Kwang-Ting Cheng, Shaoting Zhang#, Li Liang#, Hao Chen#. "Towards A Generalizable Pathology Foundation Model via Unified Knowledge Distillation." *Nature Biomedical Engineering (NBME)*, 2025. (**NBME, IF: 27.7**)

## COMPETITION

**2021 APTOS Big Data Competition** 2021.09 - 2021.12
Designed a Multiple-Instance Learning (MIL) algorithm for Prediction on DME Patients' Response to Anti-VEGF Treatment. Ranked 12/10006.

## TEACHING ASSISTANT

ELEC3120 Computer Communication Networks Fall 2023
ELEC5680 Advanced Deep Learning Architectures Spring 2023

## SELECTED AWARDS

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|---|---|
| HKUST Postgraduate Studentship | 2022-2026 |
| HKUST RedBird PhD Award | 2022-present |
| Honours Bachelor Degree (**Top 2%**) | 2022.06 |
| Outstanding Undergraduate Thesis (**Top 2%**) | 2022.06 |
| National Scholarship (**Top 2%**) | 2021.11 |
| National Scholarship (**Top 2%**) | 2020.11 |
| Outstanding Undergraduate in terms of Academic Performance (**Top 1%**) | 2020.11 |