# Anton, Yuanhuiyi LYU

HKUST · Research Assistant

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## Personal Profile

I'm now a research assistant supervised by **Dr. Addison L. Wang** at **HKUST**. I obtained my B.ENG in Artificial Intelligence from Northeastern University (**NEU**). My research interests include **Multi-modal learning**, **Embodied Vision**, and **Generative Models**.

## Education

**Northeastern University**                                                                                             *Shenyang, China*
Bachelor in Artificial Intelligence                                                                              *Sept 2019 - June 2023*

- **GPA: 87.39**/100
- **Courses:** Object-Oriented Programming(C++) (**98**), Data Structure/Algorithm (**91**), Optimization Methods (**91**), Machine Learning (**95**), Linear Algebra (**88**), Probability Theory and Mathematical Statistics (**94**), Natural Language Processing (**85**), Computer Graphics (**90**)

## Research Experience

**VLIS Lab, Hong Kong University of Science and Technology**                                *Guangzhou & Hong Kong*
Research Assistant                                                                                                 *June 2023 - present*

- **Supevisor:** Addison L. Wang
- **Research Area:** Multi-modal Learning, Embodied Vision, 3D Vision.

**NLP Lab, Tsinghua University**                                                                                  *Beijing, China*
Research Intern                                                                                                    *Oct 2021 - Dec 2022*

- **Supevisor:** Zhenghao Liu, Chenyan Xiong, Zhiyuan Liu
- **Research Area:** Multi-modal Learning, Information Retrieval.

**NLP Lab, Northeastern University**                                                                          *Shenyang, China*
Research Intern                                                                                                   *June 2021 - Sept 2021*

- **Supevisor:** Tong Xiao
- **Research Area:** Text Generation.

## Publications

OmniBind: Teach to Build Unequal-Scale Modality Interaction for Omni-Bind of All
   **Yuanhuiyi Lyu**, Xu Zheng, Dahun Kim, Lin Wang
   *arXiv preprint arXiv:2405.16108 (2024). 2024*

Image Anything: Towards Reasoning-coherent and Training-free Multi-modal Image Generation
   **Yuanhuiyi Lyu**, Xu Zheng, Lin Wang
   *arXiv preprint arXiv:2401.17664 (2024). 2024*

UniBind: LLM-Augmented Unified and Balanced Representation Space to Bind Them All
   **Yuanhuiyi Lyu**, Xu Zheng, Jiazhou Zhou, Lin Wang
   *The IEEE/CVF Conference on Computer Vision and Pattern Recognition ( **CVPR** ) (2024). 2024*

EIT-1M: One Million EEG-Image-Text Pairs for Human Visual-textual Recognition and More
   Xu Zheng, Ling Wang, Kanghao Chen, **Yuanhuiyi Lyu**, Jiazhou Zhou, Lin Wang
   *arXiv preprint arXiv:2407.01884 (2024). 2024*

Centering the Value of Every Modality: Towards Efficient and Resilient Modality-agnostic Semantic Segmentation
   Xu Zheng, **Yuanhuiyi Lyu**, Lin Wang
   *The European Conference on Computer Vision (**ECCV**) (2024). 2024*

Learning Modality-agnostic Representation for Semantic Segmentation from Any Modalities
   Xu Zheng, **Yuanhuiyi Lyu**, Lin Wang
   *The European Conference on Computer Vision (**ECCV**) (2024). 2024*

EventBind: Learning a Unified Representation to Bind Them All for Event-based Open-world Understanding
   Jiazhou Zhou, Xu Zheng, **Yuanhuiyi Lyu**, Lin Wang
   *The European Conference on Computer Vision (**ECCV**) (2024). 2024*

ExACT: Language-guided Conceptual Reasoning and Uncertainty Estimation for Event-based Action Recognition and More
   Jiazhou Zhou, Xu Zheng, **Yuanhuiyi Lyu**, Lin Wang

*The IEEE/CVF Conference on Computer Vision and Pattern Recognition ( **CVPR Highlight**) (2024). 2024*

Componerf: Text-guided multi-object compositional nerf with editable 3d scene layout
    Haotian Bai, **Yuanhuiyi Lyu**, Lutao Jiang, Si Jia Li, Haonan Lu, Xiaodong Lin, Lin Wang
*arXiv preprint arXiv:2303.13843 (2023). 2023*

Chasing Day and Night: Towards Robust and Efficient All-Day Object Detection Guided by an Event Camera
    Jiahang Cao, Xu Zheng, **Yuanhuiyi Lyu**, Jiaxu Wang, Renjing Xu, Lin Wang
*The 2024 IEEE International Conference on Robotics and Automation ( **ICRA** ) (2023). 2023*

Universal Vision-Language Dense Retrieval: Learning A Unified Representation Space for Multi-Modal Retrieval
    Zhenghao Liu, Chenyan Xiong, **Yuanhuiyi Lv**, Zhiyuan Liu, Ge Yu
*The Eleventh International Conference on Learning Representations ( **ICLR** ) (2023). 2023*

## Open-Source Projects

**Fundus Image Segmentation Base On U-Net** *Shenyang, China*
**Key Laboratory in Intelligent Medical Image Computing at Northeastern University** *June 2022 - Sept 2022*
- The code is open source at `https://github.com/QC-LY/Fundus-Image-Segmentation`

**Prompt Tuning For Sentiment Classification Base On Pre-trained Language Models** *Shenyang, China*
**NEU NLP Lab** *June 2021 - Sept 2021*
- The code is open source at `https://github.com/QC-LY/Prompt-Tuning-For-Sentiment-Classification`

## Honors and Awards(Selected)

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|---|---|---|
| 2023 | **Outstanding Graduation Dissertation (<2%),** Northeastern University | *Shenyang, China* |
| 2022 | **Outstanding Students Scholarship,** Northeastern University | *Shenyang, China* |
| 2021 | **Outstanding Students Scholarship,** Northeastern University | *Shenyang, China* |
| 2020 | **Outstanding Students Scholarship,** Northeastern University | *Shenyang, China* |

**References available upon request.**