# **Curriculum Vitae of Yudong He**

#### Education \_\_\_\_

- Ph.D. in Industry Engineering and Decision Analytics, The Hong Kong University of Science and Technology, 2022
- Bachelor Degree in Physics, The University of Science and Technology of China, 2017

## Academic Experience \_\_\_\_\_

- Post-doc at the Industry Engineering and Decision Analytics Department, The Hong Kong University of Science and Technology, 2022-
- Research Assistant at the HKUST-Shenzhen Research Institute, 2017-2018

#### Research Interests

Audio signal processing Blind signal separation, Speech enhancement, Denoising

**Compressed sensing** Sparse signal recovery, Sub-Nyquist sampling, Transmission error correction

Machine learning Clustering, Statistical learning, Artificial intelligence,

# Publications \_\_\_\_\_

- · Journal Papers:
  - 1. **He, Yudong**. "An Equilibrium Approach to Clustering: Surpassing Fuzzy C-Means on Imbalanced Data." *IEEE Transactions on Fuzzy Systems* (IF: 11.9), 2025.
  - 2. **He, Yudong**. "Semi-supervised equilibrium K-means for imbalanced data clustering." *Knowledge-Based Systems* (IF: 7.6), (2025): 113990. [Link]
  - 3. **Yudong He**, Baeck Hyun Woo, Fauzan Abdurrahim, Richard H.Y. So. "A Novel Property to Modify Weighted 11 Minimization for Improved Compressed Sensing." *Signal Processing* (IF: 3.4), 230 (2025): 109828. [Link]

#### · Conference Papers:

- 1. Yudong He, Baeck Hyun Woo, and Richard H.Y. So. "A Novel Weighted Sparse Component Analysis for Underdetermined Blind Source Separation." In ICASSP 2025 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), IEEE, 2025. [Link]
- 2. Chu Chu Qiu, Jing Wei Chin, Kwan Long Wong, Tsz Tai Chan, **Yudong He**, and Richard H.Y. So. "Remote mass facial temperature screening in varying ambient temperatures and distances." *In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2023.* [Link]
- 3. Wang, He; Zhang, Jiangang, **HE, Yudong**, and So, R.H.Y. "Directionality algorithms on Neckband Hearing Aids." 2023 Beijing International Audiology Conference, Beijing, China, 2023
- 4. **He, Yudong**, Wang, He, Chen Qifeng, and Richard H.Y. So. "Harvesting Partially-Disjoint Time-Frequency Information for Improving Degenerate Unmixing Estimation Technique." In *ICASSP 2022-2022 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, pp. 506-510. IEEE, 2022. [Link]
- 5. HUI, Jun; WEI, Yue, **HE, Yudong**, and So, R.H.Y. "Hearing Aid De-noising Algorithm for Chinese Speaker: Deep Learning Based End-to-end Speech Enhancement Model." 2019 Beijing International Audiology Conference, Beijing, China, 08-09, June 2019

#### · Symposium Papers:

- 1. Phoebe Ching, Teric Chan, **Yudong He**, Richard So, Jerry Jia. "Data-Driven and Optics-Inspired Decomposition of Global Pupil Swim in VR/AR for an Improved Perception Model of Motion Discomfort." SID Display Week 2023 Symposium (Los Angeles, CA), 2023. [Link]
- 2. **HE, Yudong**, HUI Jun, and So, R.H.Y. "A Pilot Study on Combination Methods for Audio Source Extraction With Reverberation." *Greater Bay Area International Acoustics Symposium (GBA-IAS 2019)*, 2019.
- 3. Hui Jun, **He, Yudong**, Wang Tingyi, Chen Shutao, and So Richard Hau Yue. "Preliminary Study on Overfitting in Deep-learning Speech Separation Model." *Greater Bay Area International Acoustics Symposium (GBA-IAS 2019)*, 2019.

#### PhD Thesis:

- 1. **He, Yudong**. "Improving Analytic Algorithms for Speech Separation." PhD thesis. Department of Industry Engineering and Decision Analytics, The Hong Kong University of Science and Technology, 2022. [Link]
- Preprint / Under Review / To Be Submitted:
  - 1. **He, Yudog**, Wu Hongfan, and Hubo. "On the Convergence of Semi-Supervised Fuzzy C-Means." To be submitted to *IEEE Transactions on Fuzzy Systems*.
  - 2. He, Yudong. "Imbalanced Data Clustering Using Equilibrium K-Means." arXiv Preprint arXiv:2402.114490(2024). [Link]

#### Presentations \_\_\_

- Presentation at the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Singapore, May 2022.
- Presentation at the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Suzhou (Satellite), May 2025.

## Projects \_

The second generation of the objective prediction model for the degree of motion sickness introduced by VR lens (Cooperation with Meta/Facebook)

Hong Kong

2022 - 2023

An objective prediction model for the degree of motion sickness introduced by VR lens (Cooperation with Meta/Facebook)

*Hong Kong* 2018 - 2019

Development of a deep-learning-based speech command recognition system (Cooperation with Incus)

Shenzhen, China

2017 - 2018

## Teaching Activities \_\_\_\_\_

- At the Department of Industry Engineering & Decision Analytics, The Hong Kong University of Science and Technology, 2018-2022.
  Teaching assistant:
  - 1. IEDA3130 Ergonomics and Safety Management, Fall 2021-22.
  - 2. IEDA2100S Computing in Industrial Applications, Spring 2021-22.
  - 3. IEDA2200 Engineering Management, Spring 2020-21.
  - 4. IEDA3130 Ergonomics and Safety Management, Fall 2019-20.
  - 5. IEDA2100S Computing in Industrial Applications, Spring 2019-20.
  - 6. IEDA2100S Computing in Industrial Applications, Spring 2018-19.

### Awards and Honors \_

2012

**Contest**: First Prize (top 50) in "High School Students Physics Competition Sichuan Division" (recommended for admission to USTC without National College Entrance Examination)

Chengdu