Curriculum Vitae of Yudong He

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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 l1 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*