

**Mengtao (Tomy) LYU**  
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Postdoctoral Fellow @HI Lab  
Georgia Institute of Technology

## Education

2022-25    **Ph.D.**, Hong Kong Polytechnic University  
2020-21    **M.Sc.**, Nanyang Technological University  
2013-17    **B.Eng.**, Dalian University of Technology

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## Employment

2026            **Part-time Lecturer**, Georgia Institute of Technology

2025-Now    **Postdoctoral Fellow**, [Hybrid Intelligence \(HI\) Lab](#), Georgia Institute of Technology  
(PI: [Asst Prof. Mengyao Li](#), [Prof. Jamie Gorman](#))

2025            **Research Fellow** (Human Factors), [Air Traffic Management Research Institute \(ATMRI\)](#), Nanyang Technological University  
(PI: [Asst Prof. Mir Feroskhan](#))

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## Professional Affiliations

2025-        **Member** at [Hong Kong Ergonomics Society](#)  
2024-        **Member** at [Chinese Ergonomics Society](#)  
2024- 25    **(Student) Member** at [Hong Kong Ergonomics Society](#)

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## Awards & Honors

2025        [IEA/Kingfar Student Award](#) (\$1,000)  
2022        Postgraduate Studentship Award, Hong Kong Polytechnic University

## Publications

 [Google Scholar](#)

\* → Corresponding author

† → Equal contribution

## Journal Articles

- [J1] **Mengtao, Lyu** and F. Li\*, “Do you need help? identifying and responding to pilots’ troubleshooting through eye-tracking and large language model,” *International Journal of Human-Computer Studies*, p. 103 617, 2025 Sep.
- [J2] Z. Li, F. Li\*, and **Mengtao, Lyu**, “Tracking the unseen and unaware: Deciphering controllers’ detection failures to warnings through eye-tracking metrics,” *International Journal of Human-Computer Interaction*, pp. 1–20, 2025.
- [J3] **Mengtao, Lyu**, F. Li\*, C.-H. Lee, and C.-H. Chen, “Valio: Visual attention-based linear temporal logic method for explainable out-of-the-loop identification,” *Knowledge-Based Systems*, vol. 299, p. 112 086, 2024.
- [J4] **Mengtao, Lyu**, F. Li\*, X. Qu, and Q. Li, “Flashlight model: Integrating attention distribution and attention resources for pilots’ visual behaviour analysis and performance prediction,” *International Journal of Industrial Ergonomics*, vol. 103, p. 103 630, 2024.
- [J5] Q. Li, K. K. Ng\*, C. Simon, C. Y. Yiu, and **Mengtao, Lyu**, “Recognising situation awareness associated with different workloads using eeg and eye-tracking features in air traffic control tasks,” *Knowledge-Based Systems*, vol. 260, p. 110 179, 2023.
- [J6] **Mengtao, Lyu**, L. Fan\*, X. Gangyan, and H. Su, “Leveraging eye-tracking technologies to promote aviation safety-a review of key aspects, challenges, and future perspectives,” *Safety science*, vol. 168, p. 106 295, 2023.
- [J7] **Mengtao, Lyu**, X. Li\*, and C.-H. Chen, “Achieving knowledge-as-a-service in iiot-driven smart manufacturing: A crowdsourcing-based continuous enrichment method for industrial knowledge graph,” *Advanced Engineering Informatics*, vol. 51, p. 101 494, 2022.
- [J8] X. Li\*, **Mengtao, Lyu**, Z. Wang, C.-H. Chen, and P. Zheng, “Exploiting knowledge graphs in industrial products and services: A survey of key aspects, challenges, and future perspectives,” *Computers in Industry*, vol. 129, p. 103 449, 2021.

## Conference Proceedings

- [C1] **Mengtao, Lyu** and F. Li, “Patterning risk: An innovative task design method for simulating incidents in transportation studies,” in *Proceedings of the AHFE 2019 International Conference on Human Factors in Transportation*, vol. 148, AHFE Open Acces, 2024.
- [C2] **Mengtao, Lyu**, F. Li, and C.-H. Lee, “The effects of adaptive automation on pilots’ flight control performance and visual attention distribution,” in *Proceedings of the 30th ISTE International Conference on Transdisciplinary*, IOS Press, 2023, pp. 82–91.

## Working papers

- [W1] Y. Deng<sup>†</sup>, **Mengtao, Lyu**<sup>†</sup>, J. Gao, J. Xiao, and M. Feroskhan\*, *Trust-up: Trustworthy reinforcement learning using safe techniques for uav pursuit*, *Advanced Engineering Informatics*, under review, 2026.
- [W2] Z. Li, **Mengtao, Lyu**, F. Li\*, H. Qiao, T. Yang, and C.-H. Chen, *Predicting detection failures in air traffic control: Leveraging fixation-state transitions and llm-driven probabilistic threshold tuning*, *Advanced Engineering Informatics*, under review, 2026.

- [W3] M. P. Ramesh, **Mengtao, Lyu**, I. Dhief, Z. Li, and M. Feroskhan, *Human-ai decision support for sustainable atco workload: Forecast-informed, bilevel-optimized task-load estimation*, HCI International 2026, under review, 2026.
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## Talks

- [T1] *Panel talk*, HFES- Georgia Tech Student Chapter, Oct. 2025.

## Academic Service

### Journal Referee

IEEE Transactions on Human-Machine Systems, International Journal of Human-Computer Interaction, Engineering Applications of Artificial Intelligence, Advanced Engineering Informatics, Knowledge-based systems, Computers & Industrial Engineering, Frontiers in Neuroscience

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## Projects

2025–, **Defense Advanced Research Projects Agency (DARPA)**

Bio-Behavioral Team Dynamics Measurement System (BioTDMS)

2025–, **International Centre for Aviation Innovation (ICAI) Singapore**

Multi Sector Planning

2025–, **University Grants Committee (UGC)**, Early Career Scheme (ECS)

Looking but Not Seeing? Mitigating Inattentional Blindness in Remote Digital Towers for Safe and Watchful Air Traffic Control

2025–, **National Natural Science Foundation of China (NSFC)**, Young Scientists Fund

Research on the Degradation Mechanism of Pilot Vigilance in Response to Dynamic Task Workload Conditions

2025–, **COMAC**

AI-driven Virtual Co-Pilots in Aviation

2023–, **Hong Kong Productivity Council (HKPC)**, Smart Traffic Fund (STF)

Driving Style-based Adaptive Virtual Training Platform: Build Safe Human Driving Habits in Autonomous driving

2023–, **Hong Kong Polytechnic University**

Investigating pilots' decision-making and cognitive performance in response to acute stress

2023-24, **Hong Kong Polytechnic University**

Improved Student Attention and Engagement via Visual Attention Analytics-based Slides and Lesson Plan Design

2022-24, **Hong Kong Polytechnic University**

Visual Attention Analytics in Aviation Automation via Deep Learning Model

2022-23, **Hong Kong Productivity Council (HKPC)**, Smart Traffic Fund (STF)

Investigation of an online data-driven intelligent automation platform for drivers considering the psychological condition instability and behaviours for a sustainable and safe transportation system

2021-23, **Hong Kong Polytechnic University**

Psychophysiological Data-based Knowledge Transfer Model for Adaptive Training

2020-21, **National Research Foundation (NRF) Singapore**

Stakeholder-oriented innovative user-centric design and solution generation

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## Teaching

### Hong Kong Polytechnic University

2026      **Lecturer**, Science of Occupational Health and Safety (COS2801)

2023      **Teaching Assistant**, Human Factors, Accident Prevention and Aircraft Maintenance (AAE5002)

2023      **Teaching Assistant**, Human Factors in Aviation (AAE4903)

2022      **Teaching Assistant**, Safety, Reliability and Compliance (AAE3006)

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## Advising

### Graduate

2023-24    Donglin LI      Hong Kong Polytechnic University    Master Dissertation

2023-24    Henry CHAN    Hong Kong Polytechnic University    Master Dissertation

### Undergraduate

2023-24    Cheung, Choi,    Hong Kong Polytechnic University    Capstone Project (FYP)  
              & Kwok

2022-23    Leung, Tsang,    Hong Kong Polytechnic University    Capstone Project (FYP)  
              & Lam

## Other Experience

### Industrial

2019-20    **SAP Consultant**, ABeam Global Development Centre (Shanghai) Co., Ltd.  
2017-19    **It Supervisor**, Asics China Trading Co., Ltd.

### Certificates

2022        Adult Cardio Pulmonary Resuscitation (ACPR)  
2016        N1, Japanese-Language Proficiency Test (JLPT)

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