Stanford



Yang Merik Liu

Instructor, Psychiatry and Behavioral Sciences

Bio

BIO

Dr. Yang Merik Liu is currently an Instructor with the Department of Psychiatry and Behavioral Sciences, Stanford University, and is affiliated with the Center for Machine Vision and Signal Analysis, University of Oulu, Finland. He is a Co-I of the NIH/NIA R33 Grant, a core team member of the Stanford AITC, and was a PI supported by the Finnish Cultural Foundation and the Instrumentarium Science Foundation, carrying out research on digital measures with affective intelligence. Dr. Liu coordinated and managed awarded projects of the Research Council of Finland and the Finland Ministry of Education and Culture during his postdoctoral research in University of Oulu since Jan. 2022 (Academy Prof. Guoying Zhao). He was also a former researcher with the Haaga-Helia University of Applied Sciences, in 2023, and was a visiting scholar with Hong Kong Baptist University (Prof. Pong Chi Yuen) and University of Cambridge (Prof. Hatice Gunes), in 2023 and 2024, respectively. Dr. Liu has published more than 40 papers in reputable journals and proceedings. He served as the Session Chair of IEEE FG 2025, the Track Chair of IEEE COINS 2026, the Guest Associate Editor of Frontiers in Psychology and Frontiers in Human Neurosciences, and organized tutorials and workshops in international conferences, i.e., HHAI 2024 and IEEE FG 2025. He mentored junior doctoral researchers and co-supervised post-/undergraduate students. His research interests include neurobehavioral AI, affective computing, and cognitive brain aging.

ACADEMIC APPOINTMENTS

- Instructor, Psychiatry and Behavioral Sciences

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Institute of Electrical and Electronics Engineers (IEEE) (2025 - present)
- Member, Finnish Center for Artificial Intelligence (FCAI) (2023 - present)

PROFESSIONAL EDUCATION

- PhD, South China University of Technology , Computer Science (2021)
- Postdoc, University of Oulu , Affective Computing (2024)
- Postdoc, Stanford University , Human-machine Interfaces (2026)

LINKS

- Google Scholar: https://scholar.google.com/citations?user=KBoCQLoAAAAJ&hl=en
- Cognitive and Translational Neuroscience Laboratory: https://cogtlab.stanford.edu/people
- Stanford Artificial Intelligence and Technology Collaboratory Center: https://suaitc.stanford.edu/people.html
- Stanford Older Adult Robotics: https://src.stanford.edu/soar

Research & Scholarship

PROJECTS

- Scalable Multimodal Agentic Human-Machine Interface for Precision Cognitive and Lifestyle Interventions - Stanford HAI (11/16/2026 - 11/15/2027)
- A Facial Expression-Based Personalization Engine (FPE) for Monitoring and Modulating Real-Time Effective Engagement in Cognitive Training in Older Adults at Risk for AD/ADRD - NIH/NIA (9/1/2025 - present)
- Bridging Large Affective Intelligence and Personalized Pain Detection - Instrumentarium Science Foundation (7/1/2024 - 6/30/2025)
- Towards Crowdsensing Facial Affect Encoder for Trustworthy Mental Wellbeing: A study of Workplace Pain Detection - Finnish Cultural Foundation (1/1/2024 - 12/31/2024)

Publications

PUBLICATIONS

- **A multi-dimensional transfer learning framework for studying reward-guided behaviors across species** *NATURE MENTAL HEALTH*
  Liu, Y., Turnbull, A., Adeli, E., Zhao, G., Wang, K., Vankee-Lin, F.
  2025

- **Graph-Based Facial Affect Analysis: A Review** *IEEE TRANSACTIONS ON AFFECTIVE COMPUTING*
  Liu, Y., Zhang, X., Li, Y., Zhou, J., Li, X., Zhao, G.
  2023; 14 (4): 2657-2677

- **Predictive Value of Parasympathetic Tone in Individuals Receiving Electroconvulsive Treatment.** *The journal of ECT*
  Saxena, P. P., Lin, F. V., Liu, Y. M., Oh, K. M., Raj, K., Guillen-Mendez, I., Bhati, M., Ehrie, J., Kim, D., Salaheldin, K., Shanbour, A., Matout, M., Sommer, et al
  2026

- **Domain-adaptive probabilistic broad learning with evidence fusion for multimodal bioedical vigilance estimation** *PATTERN RECOGNITION*
  Sun, S., Wang, L., Yang, K., Gong, X., Liu, Y.
  2027; 183

- **Adaptive calibration and spatio-temporal filtering for robust highway wrong-way driving detection** *FRONTIERS IN FUTURE TRANSPORTATION*
  Liu, D., Yuan, X., Zhang, Z., Zhang, L., Wang, H., Liu, Y.
  2026; 7

- **Decoupling neural representation development from trial evaluation: an operational framework for target validation and discovery in older adults.** *Ageing research reviews*
  Liu, Y. M., Turnbull, A., Ai, M., Zhang, Y., Vankee-Lin, F.
  2026: 103365

- **BRAIN-DISC: a novel analytical approach integrating data-driven brain pattern discovery with cohort studies for evaluating findings in brain modulation interventions.** *GeroScience*
  Ai, M., Turnbull, A., Zhao, K., Liu, Y., Zhang, Y., Vankee-Lin, F.
  2026

- **Cross-Species Behavioral Analysis via Multidimensional Knowledge Transfer** *IEEE INTELLIGENT SYSTEMS*
  Liu, Y., Shaw, L., Liu, H., Wang, K., Vankee-Lin, F., Zhao, G.
  2026; 41 (4): 98-107

- **Resting-state fMRI foundation models enable robust and generalizable latent neural target discovery in cognitive aging interventions.** *bioRxiv : the preprint server for biology*
  Zhou, X., Ai, M., Adeli, E., Zhang, Y., Liu, Y. M., Vankee-Lin, F.
  2026

- **APGFusion : Adaptive PoolFormer and CNN medical image fusion network based on convolutional gated linear units** *EXPERT SYSTEMS WITH APPLICATIONS*
  Hu, X., Lu, D., Liu, Y., Wu, B., Yang, F.

2026; 307

- **SORT-LFR: Revisiting SORT for Multi-Object Tracking in Low-Frame-Rate Videos** *IEEE TRANSACTIONS ON MULTIMEDIA*
  Zeng, L., Huang, Y., Lin, Y., Zhu, Z., Zhang, X., Liu, Y., Li, Y., Zheng, Y.
  2026; 28: 3364-3379
- **A multi-dimensional transfer learning framework for studying reward-guided behaviors across species.** *Nature. Mental health*
  Liu, Y. M., Turnbull, A., Adeli, E., Zhao, G., Wang, K. H., Vankee-Lin, F.
  2026; 4 (1): 15-29
- **Edge Harmony Attention Network for Semi-Supervised Medical Image Segmentation** *IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT*
  Lu, M., Liu, Y., Chen, Y., Yang, F.
  2026; 75
- **RAPOO: An Efficient Privacy-Preserving Facial Expression Recognition via Mobile Crowdsensing** *IEEE TRANSACTIONS ON MOBILE COMPUTING*
  Tian, B., Zhao, B., Xiao, Y., Liu, Y., Pei, Q., Shen, Y.
  2025; 24 (11): 11568-11581
- **Fast highway abandoned object detection via block-based multi-group foreground extraction** *SCIENTIFIC REPORTS*
  Liu, D., Wang, H., Zhang, X., Zhang, X., Liu, Y.
  2025; 15 (1): 37389
- **3-D Face De-Identification With Preserving Multi-Facial Attributes: A Benchmark** *IEEE TRANSACTIONS ON BIOMETRICS, BEHAVIOR, AND IDENTITY SCIENCE*
  Liu, Y., Cheng, K. H. M., Savic, M., Chen, H., Yu, Z., Zhao, G.
  2025; 7 (4): 681-694
- **Personalized cognitive enhancement for older adults: An aging-friendly closed-loop human-machine interface framework.** *Ageing research reviews*
  Zhou, S., Liu, Y., Turnbull, A., Tapparello, C., Adeli, E., Lin, F. V.
  2025: 102877
- **Bridging Gaps in Sundown Syndrome Research: a Scoping Review and Roadmap for Future Multimodal Approaches.** *Archives of clinical neuropsychology : the official journal of the National Academy of Neuropsychologists*
  Xu, Q., Lin, F. V., Liu, Y., Zhao, G.
  2025
- **Dynamic class-balanced threshold Federated Semi-Supervised Learning by exploring diffusion model and all unlabeled data** *FUTURE GENERATION COMPUTER SYSTEMS-THE INTERNATIONAL JOURNAL OF ESCIENCE*
  Wang, Z., Liu, Y., Liang, G., Zhong, C., Yang, F.
  2025; 169
- **Bridging Cultures: A Framework for Facial Expression and Empathy**
  Gong, Z., Liu, Y., Shi, H., Georgiev, G. V., Hakkila, J., IEEE
  IEEE.2025
- **Gender Fairness of Machine Learning Algorithms for Pain Detection**
  Green, D., Shang, Y., Cheong, J., Liu, Y., Gunes, H., IEEE
  IEEE.2025
- **Diffusion Model and Class-Balanced Adaptive Threshold for Federated Semi-supervised Non-IID Image Classification**
  Liang, G., Liu, Y., Wang, Z., Zhao, Z., Yang, F.
  edited by Huang, D. S., Li, B., Chen, H., Zhang, C.
  SPRINGER-VERLAG SINGAPORE PTE LTD.2025: 232-241
- **Editorial: Towards Emotion AI to next generation healthcare and education.** *Frontiers in psychology*
  Liu, Y., Kauttonen, J., Zhao, B., Li, X., Peng, W.
  2024; 15: 1533053

- **Multi-consistency for semi-supervised medical image segmentation via diffusion models** *PATTERN RECOGNITION*
  Chen, Y., Liu, Y., Lu, M., Fu, L., Yang, F.
  2025; 161

- **Interactions for Socially Shared Regulation in Collaborative Learning: An Interdisciplinary Multimodal Dataset** *ACM TRANSACTIONS ON INTERACTIVE INTELLIGENT SYSTEMS*
  Li, Y., Liu, Y., Nguyen, A., Shi, H., Vuorenmaa, E., Jarvela, S., Zhao, G.
  2024; 14 (3)

- **A diffusion model multi-scale feature fusion network for imbalanced medical image classification research** *COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE*
  Zhu, Z., Liu, Y., Yuan, C., Qin, X., Yang, F.
  2024; 256: 108384

- **Benchmarking deep Facial Expression Recognition: An extensive protocol with balanced dataset in the wild** *ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE*
  Tutuianu, G., Liu, Y., Alamaki, A., Kauttonen, J.
  2024; 136

- **Unified Video and Image Representation for Boosted Video Face Forgery Detection**
  Liu, H., Pan, C., Liu, Y., Zhao, G., Li, X.
  edited by Endriss, u., Melo, F. S., Bach, K., Bugarin-Diz, A., Alonso-Moral, J. M., Barro, S., Heintz, F.
  IOS PRESS.2024: 673-680

- **Uncertain Facial Expression Recognition via Multi-Task Assisted Correction** *IEEE TRANSACTIONS ON MULTIMEDIA*
  Liu, Y., Zhang, X., Kauttonen, J., Zhao, G.
  2024; 26: 2531-2543

- **PFCFuse: A Poolformer and CNN Fusion Network for Infrared-Visible Image Fusion** *IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT*
  Hu, X., Liu, Y., Yang, F.
  2024; 73

- **EXPLORING EFFECTIVE KNOWLEDGE DISTILLATION FOR TINY OBJECT DETECTION**
  Liu, H., Liu, Q., Liu, Y., Liang, Y., Zhao, G., IEEE
  IEEE.2023: 770-774

- **Deep Learning for Micro-Expression Recognition: A Survey** *IEEE TRANSACTIONS ON AFFECTIVE COMPUTING*
  Li, Y., Wei, J., Liu, Y., Kauttonen, J., Zhao, G.
  2022; 13 (4): 2028-2046

- **Uncertain Label Correction via Auxiliary Action Unit Graphs for Facial Expression Recognition**
  Liu, Y., Zhang, X., Kauttonen, J., Zhao, G., IEEE
  IEEE.2022: 777-783

- **Learning the Connectivity: Situational Graph Convolution Network for Facial Expression Recognition**
  Zhou, J., Zhang, X., Liu, Y., IEEE
  IEEE.2020: 230-234

- **FACIAL EXPRESSION RECOGNITION USING SPATIAL-TEMPORAL SEMANTIC GRAPH NETWORK**
  Zhou, J., Zhang, X., Liu, Y., Lan, X., IEEE
  IEEE.2020: 1961-1965