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## Qualifications

Doctor of Philosophy, Duke University  
Bachelor of Science, Nankai University

## Employment

### Chair Professor

Chair Professor  
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The Hong Kong Polytechnic University  
Hong Kong  
15 Jul 2024 → present

## Research outputs

### Benchmarking LLMs' Mathematical Reasoning with Unseen Random Variables Questions

Hong, Z., Wu, H., Dong, S., Dong, J., Xiao, Y., Zhang, Y., Wang, Z., Huang, F., Li, L., Yang, H. & Huang, X., Mar 2026, *Proceedings of the AAAI Conference on Artificial Intelligence*. Koenig, S., Jenkins, C. & Taylor, M. E. (eds.). 37 ed. Association for the Advancement of Artificial Intelligence, Vol. 40. p. 31023-31031 9 p. (Proceedings of the AAAI Conference on Artificial Intelligence; vol. 40, no. 37).

### Curriculum Engineering: Structured Learning for Large Language Models (LLMs) Through Curriculum Based Retrieval

Sun, K., Zhao, Z., Yang, H., Zhang, J. & Huang, G. Q. (Corresponding Author), Jan 2026, In: *IEEE Transactions on Industrial Informatics*. 22, 1, p. 555-566 12 p.

### Carbon-Aware Adaptive Routing Protocol with Real-Time Traffic Information for Cyber-Physical Internet Networks

Li, I. X., Yu, C., Wang, Y., Wu, H., Li, M. (Corresponding Author) & Yang, H., Oct 2025, *Proceedings - 2025 International Conference on Networking, Sensing and Control, ICNSC 2025*. Institute of Electrical and Electronics Engineers Inc., p. 293-300 8 p. (Proceedings - 2025 International Conference on Networking, Sensing and Control, ICNSC 2025).

### CEFSW'25: The 2nd Collaboration and Evolution of Foundation and Specialized Models Workshop

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### Collaborative garment design through group chatting with generative industrial large models

Rachana Harish, A., Yuan, Z., Li, M., Yang, H. & Huang, G. Q., May 2025, In: *Advanced Engineering Informatics*. 65, 15 p. , 103366.

### Knowledge-Empowered, Collaborative, and Co-Evolving AI Models: The Post-LLM Roadmap

Wu, F., Shen, T., Bäck, T., Chen, J., Huang, G., Jin, Y., Kuang, K., Li, M., Lu, C., Miao, J., Wang, Y., Wei, Y., Wu, F., Yan, J., Yang, H., Yang, Y., Zhang, S., Zhao, Z., Zhuang, Y. & Pan, Y., Jan 2025, In: *Engineering*. 44, p. 87-100 14 p.

### DreamClear: High-Capacity Real-World Image Restoration with Privacy-Safe Dataset Curation

Ai, Y., Zhou, X., Huang, H., Han, X., Chen, Z., You, Q. & Yang, H., Sept 2024, In: *Advances in Neural Information Processing Systems*. 37

### InfBench: Evaluating the Question-Answering Capabilities of Code Large Language Models

Li, L., Geng, S., Li, Z., He, Y., Yu, H., Hua, Z., Ning, G., Wang, S., Xie, T. & Yang, H., Sept 2024, In: *Advances in Neural Information Processing Systems*. 37

### **Visual Anchors Are Strong Information Aggregators For Multimodal Large Language Model**

Liu, H., You, Q., Han, X., Liu, Y., Huang, H., He, R. & Yang, H., Sept 2024, In: *Advances in Neural Information Processing Systems*. 37

### **An Expert is Worth One Token: Synergizing Multiple Expert LLMs as Generalist via Expert Token Routing**

Chai, Z., Wang, G., Su, J., Zhang, T., Huang, X., Wang, X., Xu, J., Yuan, J., Yang, H., Wu, F. & Yang, Y., Aug 2024, *Long Papers*. Ku, L.-W., Martins, A. F. T. & Srikumar, V. (eds.). Association for Computational Linguistics (ACL), p. 11385-11396 12 p. (Proceedings of the Annual Meeting of the Association for Computational Linguistics; vol. 1).

### **DeVAn: Dense Video Annotation for Video-Language Models**

Liu, T., Tao, Y., Liu, H., Fan, Q., Zhou, D., Huang, H., He, R. & Yang, H., Aug 2024, *Long Papers*. Ku, L.-W., Martins, A. F. T. & Srikumar, V. (eds.). Association for Computational Linguistics (ACL), p. 14305-14321 17 p. (Proceedings of the Annual Meeting of the Association for Computational Linguistics; vol. 1).

### **Expedited Training of Visual Conditioned Language Generation via Redundancy Reduction**

Jian, Y., Liu, T., Tao, Y., Zhang, C., Vosoughi, S. & Yang, H., Aug 2024, *Long Papers*. Ku, L.-W., Martins, A. F. T. & Srikumar, V. (eds.). Association for Computational Linguistics (ACL), p. 300-314 15 p. (Proceedings of the Annual Meeting of the Association for Computational Linguistics; vol. 1).

### **InfIMM: Advancing Multimodal Understanding with an Open-Sourced Visual Language Model**

Liu, H., You, Q., Wang, Y., Han, X., Zhai, B., Liu, Y., Chen, W., Jian, Y., Tao, Y., Yuan, J., He, R. & Yang, H., Aug 2024, *The 62nd Annual Meeting of the Association for Computational Linguistics: Findings of the Association for Computational Linguistics, ACL 2024*. Ku, L.-W., Martins, A. & Srikumar, V. (eds.). Association for Computational Linguistics (ACL), p. 485-492 8 p. (Proceedings of the Annual Meeting of the Association for Computational Linguistics).

### **LoraRetriever: Input-Aware LoRA Retrieval and Composition for Mixed Tasks in the Wild**

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### **COCO is 'ALL' You Need for Visual Instruction Fine-tuning**

Han, X., Wang, Y., Zhai, B., You, Q. & Yang, H., Jul 2024, *2024 IEEE International Conference on Multimedia and Expo, ICME 2024*. IEEE Computer Society, (Proceedings - IEEE International Conference on Multimedia and Expo).

### **InfAgent-DABench: Evaluating Agents on Data Analysis Tasks**

Hu, X., Zhao, Z., Wei, S., Chai, Z., Ma, Q., Wang, G., Wang, X., Su, J., Xu, J., Zhu, M., Cheng, Y., Yuan, J., Li, J., Kuang, K., Yang, Y., Yang, H. & Wu, F., Jul 2024, In: *Proceedings of Machine Learning Research*. 235, p. 19544-19572 29 p., 788.

### **Self-Infilling Code Generation**

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### **Two Stones Hit One Bird: Bilevel Positional Encoding for Better Length Extrapolation**

He, Z., Feng, G., Luo, S., Yang, K., Wang, L., Xu, J., Zhang, Z., Yang, H. & He, D., Jul 2024, In: *Proceedings of Machine Learning Research*. 235, p. 17858-17876 19 p.

### **LEMON: LOSSLESS MODEL EXPANSION**

Wang, Y., Su, J., Lu, H., Xie, C., Liu, T., Yuan, J., Lin, H., Sun, R. & Yang, H., May 2024.

### **LET MODELS SPEAK CIPHERS: MULTIAGENT DEBATE THROUGH EMBEDDINGS**

Pham, C., Liu, B., Yang, Y., Chen, Z., Liu, T., Yuan, J., Plummer, B. A., Wang, Z. & Yang, H., May 2024.

#### Learning to Reweight for Graph Neural Network

Chen, Z., Xiao, T., Kuang, K., Lv, Z., Zhang, M., Yang, J., Lu, C., Yang, H. & Wu, F., 25 Mar 2024, In: Proceedings of the AAAI Conference on Artificial Intelligence. 38, 8, p. 8320-8328 9 p.

#### An Adaptive Framework of Geographical Group-Specific Network on O2O Recommendation

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#### Causal Distillation for Alleviating Performance Heterogeneity in Recommender Systems

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#### B-CODER: VALUE-BASED DEEP REINFORCEMENT LEARNING FOR PROGRAM SYNTHESIS

Yu, Z., Tao, Y., Chen, L., Sun, T. & Yang, H., Jan 2024.

#### LEARNING STACKABLE AND SKIPPABLE LEGO BRICKS FOR EFFICIENT, RECONFIGURABLE, AND VARIABLE-RESOLUTION DIFFUSION MODELING

Zheng, H., Wang, Z., Yuan, J., Ning, G., He, P., You, Q., Yang, H. & Zhou, M., Jan 2024.

#### SLED: Structure Learning based Denoising for Recommendation

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#### Personalized Latent Structure Learning for Recommendation

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#### Edge-Cloud Polarization and Collaboration: A Comprehensive Survey for AI

Yao, J., Zhang, S., Yao, Y., Wang, F., Ma, J., Zhang, J., Chu, Y., Ji, L., Jia, K., Shen, T., Anpeng, W., Zhang, F., Tan, Z., Kuang, K., Wu, C., Wu, F., Zhou, J. & Yang, H., 1 Jul 2023, In: IEEE Transactions on Knowledge and Data Engineering. 35, 7, p. 6866-6886 21 p.

#### Contrastive Attraction and Contrastive Repulsion for Representation Learning

Zheng, H., Chen, X., Yao, J., Yang, H., Li, C., Zhang, Y., Zhang, H., Tsang, I., Zhou, J. & Zhou, M., Jul 2023, In: Transactions on Machine Learning Research. 2023-July

#### Region or Global? A Principle for Negative Sampling in Graph-Based Recommendation

Yang, Z., Ding, M., Zou, X., Tang, J., Xu, B., Zhou, C. & Yang, H., 1 Jun 2023, In: IEEE Transactions on Knowledge and Data Engineering. 35, 6, p. 6264-6277 14 p.

#### Revisiting Multimodal Representation in Contrastive Learning: From Patch and Token Embeddings to Finite Discrete Tokens

Chen, Y., Yuan, J., Tian, Y., Geng, S., Li, X., Zhou, D., Metaxas, D. N. & Yang, H., Jun 2023, *Proceedings - 2023 IEEE/CVF Conference on Computer Vision and Pattern Recognition, CVPR 2023*. IEEE Computer Society, p. 15095-15104 10 p. (Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition; vol. 2023-June).

#### CogDL: A Comprehensive Library for Graph Deep Learning

Cen, Y., Hou, Z., Wang, Y., Chen, Q., Luo, Y., Yu, Z., Zhang, H., Yao, X., Zeng, A., Guo, S., Dong, Y., Yang, Y., Zhang, P., Dai, G., Wang, Y., Zhou, C., Yang, H. & Tang, J., 30 Apr 2023, *ACM Web Conference 2023 - Proceedings of the World Wide Web Conference, WWW 2023*. Association for Computing Machinery, Inc, p. 747-758 12 p. (ACM Web Conference 2023 - Proceedings of the World Wide Web Conference, WWW 2023).

DUET: A Tuning-Free Device-Cloud Collaborative Parameters Generation Framework for Efficient Device Model Generalization

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CogKR: Cognitive Graph for Multi-Hop Knowledge Reasoning

Du, Z., Zhou, C., Yao, J., Tu, T., Cheng, L., Yang, H., Zhou, J. & Tang, J., 1 Feb 2023, In: *IEEE Transactions on Knowledge and Data Engineering*. 35, 2, p. 1283-1295 13 p.

Intra-session Context-aware Feed Recommendation in Live Systems

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In-N-Out Generative Learning for Dense Unsupervised Video Segmentation

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Single Stage Virtual Try-On Via Deformable Attention Flows

Bai, S., Zhou, H., Li, Z., Zhou, C. & Yang, H., Oct 2022, *Computer Vision – ECCV 2022 - 17th European Conference, Proceedings*. Avidan, S., Brostow, G., Cissé, M., Farinella, G. M. & Hassner, T. (eds.). Springer Science and Business Media Deutschland GmbH, p. 409-425 17 p. (Lecture Notes in Computer Science; vol. 13675 LNCS).

AD-AUG: Adversarial Data Augmentation for Counterfactual Recommendation

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Stable Prediction on Graphs with Agnostic Distribution Shifts

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Device-cloud Collaborative Recommendation via Meta Controller

Yao, J., Wang, F., Ding, X., Chen, S., Han, B., Zhou, J. & Yang, H., 14 Aug 2022, *KDD 2022 - Proceedings of the 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining*. Association for Computing Machinery, p. 4353-4362 10 p. (Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining).

GraphMAE: Self-Supervised Masked Graph Autoencoders

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OAG-BERT: Towards a Unified Backbone Language Model for Academic Knowledge Services

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Multi-objective Meta-return Reinforcement Learning for Sequential Recommendation

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OFA: Unifying Architectures, Tasks, and Modalities Through a Simple Sequence-to-Sequence Learning Framework  
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Deep Unified Representation for Heterogeneous Recommendation

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STAM: A Spatiotemporal Aggregation Method for Graph Neural Network-based Recommendation

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CogView: Mastering Text-to-Image Generation via Transformers

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UFC-BERT: Unifying Multi-Modal Controls for Conditional Image Synthesis

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#### Reinforcement Learning to Optimize Lifetime Value in Cold-Start Recommendation

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#### Continuous treatment effect estimation via generative adversarial de-confounding

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#### Controllable Generation from Pre-trained Language Models via Inverse Prompting

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#### Device-Cloud Collaborative Learning for Recommendation

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#### M6: Multi-Modality-to-Multi-Modality Multitask Mega-transformer for Unified Pretraining

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#### Learning relation alignment for calibrated cross-modal retrieval

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#### Sketch and Refine: Towards Faithful and Informative Table-to-Text Generation

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#### Learning to Rehearse in Long Sequence Memorization

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#### Controllable gradient item retrieval

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Deep co-attention network for multi-view subspace learning

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RELIABLE ADVERSARIAL DISTILLATION WITH UNRELIABLE TEACHERS

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**Dynamic Memory based Attention Network for Sequential Recommendation**

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Sparse-Interest Network for Sequential Recommendation

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## Prizes

**2025世界人工智能大會卓越人工智能引領者獎 ( SAIL )**

Yang, H. (Recipient), Jul 2025

**AI 2000 Most Influential Scholar Award**

Yang, H. (Recipient), 2023

**Top 50 Women in Tech by Forbes China**

Yang, H. (Recipient), 2022

**Top 50 Women in Web3 & AI**

Yang, H. (Recipient), Jun 2025

**世界人工智能大会卓越人工智能引领者奖 ( SAIL )**

Yang, H. (Recipient), Aug 2019

**中国电子学会科学技术进步奖一等奖**

Yang, H. (Recipient), 2021

**国家科学技术进步奖二等奖**

Yang, H. (Recipient), Sept 2021

**高等学校科学研究 优秀成果奖 ( 科学技术 ) 科学技术进步奖一等奖**

Yang, H. (Recipient), Jun 2023

## **Awards**

## **Projects**