

# Yiming Yang

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## Academic Appointments

2003–present Professor, Language Technologies Institute & Machine Learning Department, Carnegie Mellon University  
1996–2003 Associate Professor, Language Technologies Institute & Computer Science Department, Carnegie Mellon University  
1993–1996 Assistant Professor, Department of Biostatistics, Mayo Medical School  
1990–1996 Postdoctoral Associate, Department of Health Sciences Research, Mayo Clinic  
1986–1988 Research Scientist (Postdoctoral), Computing Research Laboratory, New Mexico State University

## Education

Ph.D., Computer Science, Kyoto University, 1986

## Research Contributions

**Earlier Research (1980s–2000s).** Research in natural language processing, statistical machine learning, information retrieval, and time series modeling. Major contributions include automated text classification, cross-language information retrieval, topic detection and tracking, medical informatics, and large-scale evaluation benchmarks.

**Deep Learning and Foundation Models (2010s–early 2020s).** Research in neural representation learning, graph-based machine learning, information retrieval, and deep neural architectures, including contributions to Transformer-XL, XLNet, and differentiable neural architecture search (DARTS).

**Recent Research (2020s).** Research in generative machine learning, scalable neural learning for NP-hard combinatorial optimization, and agentic large language models. Contributions include diffusion-based generative modeling, learning-based methods for solving large-scale NP-hard problems, systematic benchmarking of neural and LLM-agent approaches to combinatorial optimization, and neural and agent-based approaches to scientific computing. Current research interests also include structured reasoning, alignment, and large-scale optimization for coordination and resource allocation in LLM-based multi-agent systems.

## Recent Teaching

11-769 Generative Machine Learning (Spring 2027); 11-741/11-441 Machine Learning with Graphs (Fall 2025).

# Yiming Yang | Selected Publications & Academic Activities

## Selected Publications

1. W. Sun, S. Feng, S. Li, and Y. Yang. "CO-Bench: Benchmarking Language Model Agents in Algorithm Search for Combinatorial Optimization." AAAI, 2026.
2. S. Li et al. "CoMind: Toward Community-Driven Agents for Machine Learning Engineering." ICLR, 2026.
3. S. Feng et al. "FrontierCO: Real-World and Large-Scale Evaluation of Machine Learning Solvers for Combinatorial Optimization." ICLR, 2026.
4. S. Feng and Y. Yang. "Regularized Langevin Dynamics for Combinatorial Optimization." ICML, 2025.
5. Z. Sun and Y. Yang. "DIFUSCO: Graph-based Diffusion Solvers for Combinatorial Optimization." NeurIPS, 2023.
6. R. Qiu, Z. Sun, and Y. Yang. "DIMES: A Differentiable Meta Solver for Combinatorial Optimization Problems." NeurIPS, 2022.
7. Z. Yang et al. "XLNet: Generalized Autoregressive Pretraining for Language Understanding." NeurIPS, 2019.
8. Z. Dai et al. "Transformer-XL: Attentive Language Models Beyond a Fixed-Length Context." ACL, 2019.
9. H. Liu, K. Simonyan, and Y. Yang. "DARTS: Differentiable Architecture Search." ICLR, 2019.
10. Y. Yang and X. Liu. "A Re-examination of Text Categorization Methods." SIGIR, 1999.
11. Y. Yang and J. P. Pedersen. "A Comparative Study on Feature Selection in Text Categorization." ICML, 1997.

Complete publication list: <https://www.cs.cmu.edu/~yiming/publications.html>

## Doctoral Advising

**Current Ph.D. students:** Shengyu Feng, Weiwei Sun, Weihua Du, Sijie Li, Zhengliang Shi.

**Former Ph.D. students (including transfers):** Doug Baker, James Campbell, Ulas Bardak, Wei-Cheng Chang, Zihang Dai, Siddharth Gopal, Abhay S. Harpale, Andrew His, Abhimanyu Lad, Guokun Lai, Nie Lao, Han Liu, Shanda Li, Fan Li, Jingzhou Liu, Yan Liu, Hanxiao Liu, Aman Madaan, Hieu Pham, Monica Rogati, Konstantin Salomatin, Zhiqing Sun, Yuexin Wu, Ruochen Xu, Shinjae Yoo, Donghan Yu, Ruohong Zhang, Jian Zhang, Guoqing Zheng.

## Professional Service

Area Chair or Senior Area Chair for NeurIPS, ICML, ICLR, and ACM SIGIR over many years. Member, SIGIR Academy Award Committee; former Editorial Board member, Information Retrieval Journal. Extensive university and departmental service, including admissions, faculty hiring, and academic committees.