LU YIN

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Google Scholar: https://scholar.google.com/citations?user=G4Xe1NkAAAAJ

ABOUT ME

Hello, I'm Lu, an Assistant Professor at the **University of Surrey**, a long-term visitor and collaborator with the Visual Informatics Group **(VITA) at UT Austin,** and a visiting researcher at Eindhoven University of Technology **(TU/e)**. My primary research focuses on understanding and building AI models with **Efficiency and Scalability.** I believe that passion and persistence are the cornerstones of transformative research, and I am committed to producing work of the highest caliber.

RESEARCH INTERESTS

\# AI Efficientcy   # Large Language Models   # ML/DL   # AI Interdisciplinary Applications

PROFESSIONAL EXPERIENCE

University of Surrey
06/2024 – Present

Assistant Professor
- Nature Inspired Computing and Engineering Group

Eindhoven University of Technology
07/2023 – 12/2023

Postdoctoral Researcher
- Department **of** Mathematics and Computer Science

Google, New York Office
07/2023 – 09/2023

AI Researcher (Intern)
- Build Efficient Large Language Models (LLM)

EDUCATION

Eindhoven University of Technology
10/2018 - 2/2023

Ph.D in Computer Science

Department: Mathematics and Computer Science
Specialization: Knowledge Elicitation, Data Efficiency, Model Efficiency
Promotors: Prof. Dr. Mykola Pechenizkiy; Dr. Vlado Menkovski

Harbin Institute of Technology (Shenzhen)
09/2015 - 07/2018

Master in Control Engineering

Department: Mechanical Engineering and Automation
Specialization: Machine Learning, Robotics
Promotors: Prof. Dr.Xiaorui Zhu

Harbin Institute of Technology
09/2009 - 07/2013

Bachelor in Electrical Engineering and Automation
Department: Information and Electrical Engineering

AWARDS AND HONOURS

- 12/2022 Best Paper Award at Learning on Graphs Conference (LoG). 2022.
- 06/2017 Best Paper Nomination Award at International Conference on Computer Vision Systems (ICVS), 2017

GRANT

NWO Grants for Computing Time

- Funding Body: The Dutch Research Council (NWO)
- Value of Award: 90,431.5 $
- Duration: April 2023 - April 2025
- Role on the Grant: Co-pi (with Mykola Pechenizkiy and Shiwei Liu)

NWO Grants for Computing Time

- 2022 EINF-2694：HPC Cloud (CPU): 50.000 hr，HPC Cloud (GPU： NVIDIA GeForce RTX 2080 Ti): 10,000 hr
- 2022 EINF-2943：NVIDIA A100，1,000,000 Credits (7,812 hr)
- 2023 EINF-5205：HPC Cloud (GPU： NVIDIA GeForce RTX 2080 Ti): 10,000 hr
- 2023 EINF-5206：NVIDIA A100，1,000,000 Credits (7,812 hr)

SUPERVISION ACTIVITIES

Ph.D Projects

- 2024, Model Compression - Andi Li, University of Aberdeen,
- 2024, Robustness of Large Foundation Models - Kappiyath Adarsh, University of Surrey,
- 2024, Resource Efficient 3D World Understanding - Thengane Vishal, University of Surrey,
- 2024, Efficient LLM - Jiaxi Li, University of Surrey

MSc Projects

- 2022, Automated Object Recognition in Aerial Photographs -Judith te Selle, TU/e
- 2022, Aspect-based Few-shot Learning -Phuong Trinh, TU/e

BSc Projects

- 2024, Sparse Training with Dynamic Sparsity - Roche Saul, University of Surrey
- 2024, Reliable Music Generation - Davison Ben, University of Surrey

TEACHINGS

Deep Learning (2AMM10), Eindhoven University of Technology	2020
Deep Learning (2AMM10), Eindhoven University of Technology	2021
Deep Learning (2AMM10), Eindhoven University of Technology	2023
Applied Artificial Intelligence (CS5079), University of Aberdeen	2024
Data Mining and Deep Learning (CS552J), University of Aberdeen	2024
Practical Business Analytics (Com3018), University of Surrey	2024
Deep Learning and Advanced AI (COM3025), University of Surrey	2025

SERVICE

- 2025 : Conference Reviewer: CPAL, ICLR, CVPR
- 2024: Conference Reviewer: NeurIPS, DAC, UAI, ICML, CPAL
  Journal Reviewer: ACM Computing Surveys
- 2023 : Conference Reviewer: NeurIPS, UAI, ICLR SNN(workshop)
  Journal Reviewer: Clinical Epidemiology
- 2022: Conference Reviewer: SNN
- 2020：Conference Reviewer: ECML-PKDD

TALKS ORGANIZATIONAL CONTRIBUTION

- 2024: The power of model sparsity, Multimedia Analytics (MA) Laboratory at City University of Hong Kong
- 2023: LLM pruning, Visual Informatics Group @ University of Texas at Austin,
  Meta universe and Digital Human @ AI time PhD Debate, Tsinghua
- 2022: Model/supervision Efficiency at Xu Lab, Carnegie Mellon University,
- 2020: Going beyond training ML models with labels at EDGE AI, Eindhoven University of Technology,

ORGANIZATIONAL CONTRIBUTION

- NeurIPS 2024 Challenge： Edge-Device Large Language Model Competition
- IEEE CAI 2025 Workshop：Stable Training Paradigms for LLMs: Reducing Instability, Increasing Capacity
- IEEE CAI 2025 Workshop：Secure, Private, and Fair Federated Optimization and Learning

RESEARCH & SELECTED PUBLICATION

Overall: (as of December 2024)

- **over 40** papers (12 **A*** and 5 **A** top AI conference papers, CORE Conference Ranking), 1 Jornal Paper

Highlights:

- 1 **Best Paper Award,** 1 **Best Paper Nomination Award.**
- 5 **ICML**, 3**Neurips**, 2 **EMNLP**, 1 **BMVC**, 1 **ICASSP**, 1 **ICLR**, 1 **AAAI**, 1 **UAI.**

Selected Publications

- **Lu Yin**, You Wu, .etc. *Outlier Weighed Layerwise Sparsity (OWL): A Missing Secret Sauce for Pruning LLMs to High Sparsity*. The Forty-first International Conference on Machine Learning (**ICML**), 2024

- **Lu Yin**, Ajay Jaiswal, .etc. *Pruning Small Pre-Trained Weights Irreversibly and Monotonically Impairs "Difficult" Downstream Tasks in LLMs*. The Forty-first International Conference on Machine Learning (**ICML**), 2024

- Tianjin Huang, **Lu Yin**, Zhenyu Zhang, Li Shen, Meng Fang, Mykola Pechenizkiy, Zhangyang Wang, Shiwei Liu. Are Large Kernels Better Teachers than Transformers for ConvNets? International Conference on Machine Learning (ICML), 2023.

- **Lu Yin,** Gen Li, Meng Fang, Li Shen, Tianjin Huang, Zhangyang Wang, Vlado Menkovski, Xiaolong Ma, Mykola Pechenizkiy, Shiwei Liu. *Dynamic Sparse Training Is also A Structure Sparsity Learner.* Conference on Neural Information Processing Systems (**NeurIPS**), 2023

- **Lu Yin**, Shiwei Liu, Fang Meng, Tianjin Huang, Vlado Menkovski, Mykola Pechenizkiy. *Lottery Pools: Winning More by Interpolating Tickets without Increasing Training or Inference Cost*. Thirty-Seventh AAAI Conference on Artificial Intelligence (**AAAI**), 2023.

- **Lu Yin**, Vlado Menkovski,Meng Fang, Tianjin,Huang, Yulong Pei,Mykola Pechenizkiy, Decebal Constantin Mocanu, Shiwei Liu. *Superposing Many Tickets into One: A Performance Booster for Sparse Neural Network Training.* The 38th Conference on Uncertainty in Artificial Intelligence (**UAI**). 2022.

- Jie Ji, Gen Li, **Lu Yin**, .etc. BiDST: *Dynamic Sparse Training is a Bi-Level Optimization Problem.* The Forty-first International Conference on Machine Learning (**ICML**), 2024

- Shiwei Liu, **Lu Yin**, Decebal Constantin Mocanu, and Mykola Pechenizkiy. *Do We Actually Need Dense Over-Parameterization? In-Time Over-Parameterization in Sparse Training.* The Thirty-eighth International Conference on Machine Learning (**ICML**), PMLR, 2021.

- Qiao Xiao, Boqian Wu, **Lu Yin,** Christopher Neil Gadzinski, Tianjin Huang, Mykola Pechenizkiy, Decebal Constantin Mocanu. *Are Sparse Neural Networks Better Hard Sample Learners?* Conference on British Machine Vision Conference. (**BMVC**), 2024

- Adriana Fernandez-Lopez, Shiwei Liu, **Lu Yin**, Stavros Petridis, Maja Pantic, *Full-Rank No More: Low-Rank Weight Training for Modern Speech Recognition Models.* IEEE International Conference on Acoustics, Speech, and Signal Processing. (**ICASSP**), 2025

- Boqian Wu, Qiao Xiao, Shiwei Liu, **Lu Yin,** etc. *E2ENet: Dynamic Sparse Feature Fusion for Accurate and Efficient 3D Medical Image Segmentation.* Conference on Neural Information Processing Systems (**NeurIPS**), 2024

- AJAY KUMAR JAISWAL, **Lu Yin.** etc, *FFN-SkipLLM: A Hidden Gem for Autoregressive Decoding with Adaptive Feed Forward Skipping,* Conference on Empirical Methods in Natural Language Processing (**EMNLP**), 2024

- Abhinav Bandari, **Lu Yin.** etc, *FFN-SkipLLM: Is C4 Dataset Enough for Pruning? An Investigation of Calibration Data for LLM Pruning,* Conference on Empirical Methods in Natural Language Processing (**EMNLP**), 2024

- Gen Li, **Lu Yin**, Jie Ji, Wei Niu, Minghai Qin, Bin Ren, Linke Guo, Shiwei Liu, Xiaolong Ma *NeurRev: Train Better Sparse Neural Network Practically via Neuron Revitalization.* The Twelfth International Conference on Learning Representations. (**ICLR**) 2024

- Shiwei Liu, Tianlong Chen, Xiaohan Chen, Zahra Atashgahi, **Lu Yin**, Huanyu Kou, Li Shen, Mykola Pechenizkiy, Zhangyang Wang, and Decebal Constantin Mocanu. *Sparse Training via Boosting Pruning Plasticity with Neuroregeneration.* The Thirty-fifth Conference on Neural Information Processing Systems (**NeurIPS**), 2021

- Zahra Atashgahi, Xuhao Zhang, Neil Kichler, Shiwei Liu, **Lu Yin**, Mykola Pechenizkiy, Raymond Veldhuis, Decebal Constantin Mocanu. *Supervised Feature Selection with Neuron Evolution in Sparse Neural Networks*. Transactions on Machine Learning Research (**TMLR**).

- Tianjin Huang, Tianlong Chen, Meng Fang, Vlado Menkovski, Jiaxu Zhao, **Lu Yin**, Yulong Pei, Decebal Constantin Mocanu, Zhangyang Wang, Mykola Pechenizkiy, Shiwei Liu. *You Can Have Better Graph Neural Networks by Not Training Weights at All: Finding Untrained GNNs Tickets*. Learning on Graphs Conference (**LoG**). 2022. (**BEST PAPER AWARD**)

- **Lu Yin**, Vlado Menkovski, Mykola Pechenizkiy. *Knowledge Elicitation using Deep Metric Learning and Psychometric Testing.* The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases **(ECML-PKDD)**, Ghent, Belgium, 2020.

- Jiaxu Zhao*, **Lu Yin***, Shiwei Liu, Fang Meng. Mykola Pechenizkiy. *REST: Debiasing Deep Neural Networks through Reweighted Sparse Training.* The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (**ECML-PKDD**). Turin, Italy, 2023. *equal contribution

- Tianjin Huang, Shiwei Liu, Tianlong Chen, Meng Fang, Li Shen, Vlado Menkovski, **Lu Yin,** Yulong Pei, Mykola Pechenizkiy. *Enhancing Adversarial Training via Reweighting Optimization Trajectory.* The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases **(ECML-PKDD)**. Turin, Italy, 2023.

- **Lu Yin**. *Beyond Labels: Knowledge Elicitation using Deep Metric Learning and Psychometric Testing.* 29th International Joint Conference on Artificial Intelligence-17th Pacific Rim International Conference on Artificial Intelligence (**IJCAI DC**), 2020. Doctoral Consortium.

- **Lu Yin**, Vlado Menkovski, Shiwei Liu, and Mykola Pechenizkiy. *Hierarchical Semantic Segmentation using Psychometric Learning*. The Thirteenth Asian Conference on Machine Learning (**ACML**), 2021. (**LONG ORAL**)

- **Lu Yin**, Vlado Menkovski, Yulong Pei, and Mykola Pechenizkiy. *Semantic-Based Few-Shot Learning by Interactive Psychometric Testing*. The Workshop on Interactive Machine Learning. The Thirty-Sixth AAAI Conference on Artificial Intelligence (**AAAI Workshop**), 2022

- **Lu Yin**, Vlado Menkovski, Yulong Pei, and Mykola Pechenizkiy. *Semantic-Based Few-Shot Learning by Psychometric Testing*. International Symposium on Intelligent Data Analysis (**IDA**). Springer, Cham, 2022.

- Fucheng Deng, Xiaorui Zhu, **Lu Yin**, Chao H, *Real-Time Detection of Polygons and Circles Based on Semantics*. 2018 IEEE International Conference on Information and Automation (**ICIA**). IEEE, 2018: 444-449.

- Xiaorui Zhu, **Lu Yin,** Fucheng Deng. *Wind Disturbance Rejection in Position Control of Unmanned Helicopter by Nonlinear Damping.* International Conference on Computer Vision Systems (**ICVS**). Springer, Cham, 2017: 590-599. (**BEST PAPER NOMINEES AWARD**)

More in: https://scholar.google.com/citations?user=G4Xe1NkAAAAJ