

# LU YIN

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University: Eindhoven University of Technology

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## EDUCATION

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**10/2018 - present**

**Eindhoven University of Technology**

**PhD** Computer Science

**Department:** Mathematics and Computer Science

**Specialization:** Sparse Training, Data Efficiency, Interactive Machine Learning.

**Promotors:** Prof. Dr. Mykola Pechenizkiy; Dr. Vlado Menkovski

**09/2015 - 07/2018**

**Harbin Institute of Technology Shenzhen Graduate School**

**M.Eng** Control Engineering

**Department:** Mechanical Engineering and Automation

**Specialization:** Control Engineering, Robotics

**Advisor:** Prof. Dr. Xiaorui Zhu

**09/2009 - 07/2013**

**Harbin Institute of Technology**

**B.Eng** Electrical Engineering and Automation

**Department:** Information and Electrical Engineering

## RESEARCH INTERESTS

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Deep Learning, Sparse Neural Network Training, Neural Network Pruning, Metric Learning, Few-shot learning, Active Learning

## AWARDS AND HONOURS

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**10/2018**

Scholarship, Four-years Ph. D. founding, Chinese Scholarship Council

**07/2016**

Scholarship, Second-class Scholarship, Harbin Institute of Technology

**07/2015**

Scholarship, Second-class Scholarship, Harbin Institute of Technology

**09/2015**

Excellent Student Leader, Harbin Institute of Technology

**09/2012**

Excellent innovation ability certification, Beijing Jiaotong University

## WORK EXPERIENCE

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**04/2022 - 06/2022**                      **Eindhoven University of Technology**

**04/2021 - 06/2021**                      *Teaching Assistant of Deep Learning Course*

**04/2020 - 06/2020**

- Develop the tutorials for Pytorch, CNN model and Word Embedding
- Develop and grade the assignments
- Record the lectures video for more than 200 students

**08/2016 - 01/2017**                      **Harbin Institute of Technology Shenzhen Graduate School**

*Teaching Assistant of Deep Learning Course*

- Prepare lecture slides for Forward Propagation and CNN model
- Grade the assignments

**05/2016 - 07/2016**                      **DaDao Intelligence & Innovation Technology Co., Ltd**

*Embedded Systems Engineer*

- Controlling the speed and direction of a patrol robot by STM32

## RESEARCH & PUBLICATION

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### ***Model Efficiency and Sparse Training***

- **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.
- 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.
- 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.
- **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*. (**Arxiv**), 2022.

### ***Data Efficiency and Knowledge Elicitation***

- **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.
- **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**), 2022
- **Lu Yin**, Vlado Menkovski, Yulong Pei, and Mykola Pechenizkiy. *Semantic Based Few-Shot Learning by Psychometric Testing*. *The Workshop on Interactive Machine Learning*. The Intelligent Data Analysis symposium (**IDA**), 2022

### **Others**

- 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**)

### **Preprint**

- 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 Graph Tickets*. Coming Soon
- Tianjin Huang, Shiwei Liu, Tianlong Chen, Meng Fang, Li Shen, Vlado Menkovski, **Lu Yin**, Yulong Pei, Mykola Pechenizkiy. *In-Time Refining Optimization Trajectories Toward Improved Robust Generalization*. Coming Soon.
- Zahra Atashgahi, Xuhao Zhang, Neil Kichler, Shiwei Liu, **Lu Yin**, Mykola Pechenizkiy, Raymond Veldhuis, Decebal Constantin Mocanu. *Feature Selection with Neuron Evolution*. Coming Soon.
- Qiao Xiao, Boqian Wu, **Lu Yin**, Mykola Pechenizkiy, Decebal Constantin Mocanu. *Can Less Yield More Insights into Truly Sparse*. Coming Soon.

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

## **RESEARCH ACTIVITIES**

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### **Talks:**

Going beyond training with labels for Edge AI ML models, in EDGE AI, TU/e [2020]

### **Conference Program Committee Member/Reviewer:**

The European Conference on Machine Learning (ECML) [2020]. Session chair.

The European Conference on Machine Learning (ECML) [2020]. Reviewer.

Symposium on Intelligent Data Analysis (IDA) [2018]. Volunteer.

### **Workshop Reviewer:**

Sparsity in Neural Networks: Advancing Understanding and Practice 2021

## **HOBBIES**

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Fitness, Photography