Wenlong Deng

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EDUCATION BACKGROUND

University of British Columbia(UBC) **Sep. 2022 - Sep. 2026(expected)**
Ph.D. in Electrical and Computer Engineering *Vancouver, Canada*
Supervisors: Prof. Xiaoxiao Li & Prof. Christos Thrampoulidis

Vector Institute **Sep. 2023 - Sep. 2025(expected)**
Ph.D. Researcher *Toronto, Canada*

Swiss Federal Institutes of Technology in Lausanne **Sep. 2017 - Nov. 2019**
MSc in Electrical Engineering *Lausanne, Switzerland*
GPA: **5.4/6.0** Rank: **7/42** Specialization in Data and Information Technology

University of Electronic Science and Technology of China **Sep. 2013 - June 2017**
B.E. in Electronic Information Engineering *Chengdu, China*
GPA **3.9/4.0** Rank: **5/368**

SELECT PUBLICATIONS & SUBMISSIONS

- **Wenlong Deng**, Yi Ren, Danica J. Sutherland, Christos Thrampoulidis and Xiaoxiao Li. Token Hidden Reward: Steering Exploration-Exploitation in GRPO Training. *Under Review 2025*
- **Wenlong Deng***, Running Yang*, Minghui Chen, Yuyin Zhou, Xiaoxiao Li. Enhancing Clinical Multiple-Choice Questions Benchmarks with Knowledge Graph Guided Distractor Generation. ICML 2025 Workshop on Reliable and Responsible Foundation Models.
- **Wenlong Deng**, Yi Ren, Muchen Li, Danica J. Sutherland, Xiaoxiao Li and Christos Thrampoulidis. On the Effect of Negative Gradient in Group Relative Deep Reinforcement Optimization. *Under Review at NeurIPS 2025*
- **Wenlong Deng***, Juncheng Wu*, Xingxuan Li, Sheng Liu, Taomian Mi, Yifan Peng, Ziyang Xu, Yi Liu, Hyunjin Cho, Chang-In Choi, Yihan Cao, Hui Ren, Xiang Li, Xiaoxiao Li, Yuyin Zhou. MedReason: Eliciting Factual Medical Reasoning Steps in LLMs via Knowledge Graphs. (**5k downloads within one week**) *Under Review*
- **Wenlong Deng**, Blair Chen, Xiaoxiao Li and Christos Thrampoulidis. Content Conditional Debiasing for Fair Text Embedding. *In submission*
- **Wenlong Deng**, Yize Zhao, Vala Vakilian, Minghui Chen, Xiaoxiao Li, Christos Thrampoulidis. DARE the Extreme: Revisiting Delta-Parameter Pruning For Fine-Tuned Models. (**Spotlight Top 5%**) ICLR 2025
- **Wenlong Deng***, Jiaxi Yang*, Benlin Liu, Yangsibo Huang, James Zou and Xiaoxiao Li. GMValuator: Similarity-based Data Valuation for Generative Models. ICLR 2025
- Minghui Chen, Ruinan Jin, **Wenlong Deng**, Yuanyuan Chen, Zhi Huang, Han Yu, Xiaoxiao Li. Can Textual Gradient Work in Federated Learning? ICLR 2025
- Ruinan Jin, **Wenlong Deng**, Minghui Chen, and Xiaoxiao Li. Debiased noise editing on foundation models for fair medical image classification. *International Conference on Medical Image Computing and Computer-Assisted Intervention*, 2024
- **Wenlong Deng**, Christos Thrampoulidis, and Xiaoxiao Li. Unlocking the potential of prompt-tuning in bridging generalized and personalized federated learning. *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024
- **Wenlong Deng**, Yuan Zhong, Qi Dou, and Xiaoxiao Li. On fairness of medical image classification with multiple sensitive attributes via learning orthogonal representations. In *International Conference on Information Processing in Medical Imaging*, pages 158–169. Springer, 2023 (Accept rate 25%)

- Beidi Zhao, **Wenlong Deng**, Zi Han, Chen Zhou, Zuhua Gao, Gang Wang, Xiaoxiao Li, et al. Less: Label-efficient multi-scale learning for cytological whole slide image screening. *Medical Image Analysis (IF:10.9)*, 2024
- Anushree Bannadabhavi, Soojin Lee, **Wenlong Deng**, Rex Ying, and Xiaoxiao Li. Community-aware transformer for autism prediction in fmri connectome. In *International Conference on Medical Image Computing and Computer-Assisted Intervention*, pages 287–297. Springer, 2023
- **Wenlong Deng**, Lorenzo Bertoni, Sven Kreiss, and Alexandre Alahi. Joint human pose estimation and stereo 3d localization. In *2020 IEEE International Conference on Robotics and Automation (Rank A)*, pages 2324–2330, 2020
- **Wenlong Deng**, Y. Mou, T. Kashiwa, S. Escalera, K. Nagai, K. Nakayama, Y. Matsuo, and H. Prendinger. Vision based pixel-level bridge structural damage detection using a link aspp network. *Automation in Construction (IF:10.5)*, 110:102973, 2020
- Juan Jose Rubio, Takahiro Kashiwa, Teera Laiteerapong, **Wenlong Deng**, Kohei Nagai, Sergio Escalera, Kotaro Nakayama, Yutaka Matsuo, and Helmut Prendinger. Multi-class bridge structural damage segmentation using fully convolutional networks. *Computers in Industry (IF:11.2)*, 112:103121, 2019

WORK EXPERIENCE

Meta - Research Scientist Intern **June 2025 – Oct. 2025 (Incoming)**
LLM Prompt Auto Optimization *Meta GenAI*

Google - Student Researcher **Oct 2023 – April 2024**
Document Embedding AI *Google Cloud*

Fair Document Embedding: We achieve fairness while maintaining utility trade-off by ensuring conditional independence between sensitive attributes and text embeddings conditioned on the content. Specifically, we enforce that embeddings of texts with different sensitive attributes but identical content maintain the same distance toward the embedding of their corresponding neutral text. Furthermore, we address the issue of lacking proper training data by using Large Language Models (LLMs) to augment texts into different sensitive groups.

TikTok - Algorithm Engineer **March 2021 – April 2022**
CVR Estimation Optimization *TikTok Ads*

- Auto Feature Interaction: Optimize TikTok ads cvr model with the self-ensemble neural network and skip connect with row feature to introduce low-level feature interaction. Furtherly introduced high-level interactions by using element-wise multiplication/V-DCN within/in the ensemble networks. Algorithm improved offline AUC by 0.3%, brought 7.5% advertisement value(revenue) to TikTok AEO Ads and got 1.4% revenue gain for overall TikTok Ads.
- Model Smoothness Optimization: Proposed a SML module to introduce skip connection mechanism into the CTR prediction model thus improving DNN's optimization ability and fully stimulating DNN's expressive ability. With the help of theoretical proof and experimental analysis, the benefit of the proposed module is supported. By incrementally adding the SML module to the selected state of the art methods, consistent performance gains are observed.

TikTok - Algorithm Engineer **Feb. 2020 – Feb. 2021**
Search Relevation Optimization *TikTok Search*

- Content Embedding Implement SOTA text+video understanding methods to produce content embedding. Insert the obtained embedding into ctr estimation model and improve the NDCG performance of search results.
- Unsupervised Text Classification with Graph-Cut: Built a graph with lyric words as nodes and search query as prior information, combing with the user behavior information, trained a graph-cut model to extract completed lyrics from video titles. Linked lyric-like search queries with videos whose audio contains the lyric. Boost the search performance by 5%.

AWARDS

Reasoning Dataset Competition 3rd Prize (huggingface) *2025*
NeurIPS Top Reviewer *2024*
Vector Research Grant *2024*
Graduate Support Initiative (GSI) Award *2022-2024*
TikTok Bi-Monthly Technology Star (top 1%) *2021*
Radio Hacking Europe Competetion 2nd Prize (#2) *2019*
Outstanding Graduate of University of Electronic Science and Technology of China (Top 5%) *2017*
Best Graduation Paper Work Prize of University of Electronic Science and Technology of China *2017*
People's First Scholarship (Top 5%) *2015-2017*
China Undergraduate Mathematical Contest in Modeling First Prize (Top 1%) *2015*

SERVES

PC member of FL@FM-IJCAI'24 and FL@FM-ICME'24 *2024*
Reviewer of Medical Image Analysis,MICCAI,NeurIPS,ICLR,ICML,AISTATS,TMLR *2023-now*