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<b>Research Interests</b>	Large Language Models, Reasoning, Natural Language Processing, Learning Theory, Model Compression, Vision	
<b>Education</b>	<b>Peking University (PKU)</b> School of Earth and Space Science B.Sc., in the Specialty of Geographical Information Science <span style="float: right;">2014 – 2019</span>	
<b>Research Experience</b>	<b>Google DeepMind</b> <i>Research Engineer</i> <span style="float: right;">May 2024 – Present</span> Gemini core contributor (post-training workflow). LLM general reasoning capabilities in math, science, coding and planning.	
	<b>Google</b> <ul style="list-style-type: none"> <li> <b>NLP, Cerebra, Research</b>  <i>Research Engineer</i> <span style="float: right;">Mar 2023 – May 2024</span>            LLM mathematical reasoning; alignment and post-training; open-ended text generation and self-critique.         </li> <li> <b>Vertex AI Search, Cloud AI</b>  <i>Software Engineer</i> <span style="float: right;">Sep 2021 – Mar 2023</span>            TPU infrastructure, model training and quality.         </li> <li> <b>Mobile Models, Cerebra, Research</b>  <i>AI Resident</i>, advised by <a href="#">Andrew Howard</a> and <a href="#">Mark Sandler</a> <span style="float: right;">Oct 2019 – Jun 2021</span>            Large-scale model compression.         </li> </ul>	
<b>Publications</b>	<ol style="list-style-type: none"> <li>15. Towards an On-Device Agent for Text Rewriting.              Yun Zhu, Yinxiao Liu, Felix Stahlberg, Shankar Kumar, Yu-hui Chen, <b>Liangchen Luo</b>, Lei Shu, Renjie Liu, Jindong Chen, Lei Meng.              In <i>Findings of the Association for Computational Linguistics: NAACL 2024 (NAACL Findings)</i>. 2024.</li> <li>14. RewriteLM: An Instruction-Tuned Large Language Model for Text Rewriting.              Lei Shu, <b>Liangchen Luo</b>, Jayakumar Hoskere, Yun Zhu, Yinxiao Liu, Simon Tong, Jindong Chen, Lei Meng.              In <i>Proceedings of the 38th AAAI Conference on Artificial Intelligence (AAAI)</i>. 2024.</li> <li>13. Adaptive Gradient Methods with Dynamic Bound of Learning Rate.  <b>Liangchen Luo*</b>, Yuanhao Xiong*, Yan Liu, Xu Sun.              In <i>Proceedings of the 7th International Conference on Learning Representations (ICLR)</i>. 2019.</li> <li>12. Learning Personalized End-to-End Goal-Oriented Dialog.  <b>Liangchen Luo</b>, Wenhao Huang, Qi Zeng, Zaiqing Nie, Xu Sun.              In <i>Proceedings of the 33rd AAAI Conference on Artificial Intelligence (AAAI)</i>. 2019.</li> <li>11. Text Assisted Insight Ranking Using Context-Aware Memory Network.              Qi Zeng*, <b>Liangchen Luo*</b>, Wenhao Huang, Yang Tang.              In <i>Proceedings of the 33rd AAAI Conference on Artificial Intelligence (AAAI)</i>. 2019.</li> </ol>	

10. An Auto-Encoder Matching Model for Learning Utterance-Level Semantic Dependency in Dialogue Generation.  
**Liangchen Luo\***, Jingjing Xu\*, Junyang Lin, Qi Zeng, Xu Sun.  
*In Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing (EMNLP).* 2018.

## Manuscripts

9. Improve Mathematical Reasoning in Language Models by Automated Process Supervision.  
**Liangchen Luo\***, Yinxiao Liu\*, Rosanne Liu, Samrat Phatale, Harsh Lara, Yunxuan Li, Lei Shu, Yun Zhu, Lei Meng, Jiao Sun, Abhinav Rastogi.  
*arXiv preprint arXiv:2406.06592.* 2024.
8. Multi-Step Problem Solving Through a Verifier: An Empirical Analysis on Model-Induced Process Supervision.  
 Zihan Wang, Yunxuan Li, Yuexin Wu, **Liangchen Luo**, Le Hou, Hongkun Yu, Jingbo Shang.  
*arXiv preprint arXiv:2402.02658.* 2024.
7. Fusion-Eval: Integrating Evaluators with LLMs.  
 Lei Shu, Nevan Wichers, **Liangchen Luo**, Yun Zhu, Yinxiao Liu, Jindong Chen, Lei Meng.  
*arXiv preprint arXiv:2311.09204.* 2023.
6. SiRA: Sparse Mixture of Low Rank Adaptation.  
 Yun Zhu, Nevan Wichers, Chu-Cheng Lin, Xinyi Wang, Tianlong Chen, Lei Shu, Han Lu, Canoe Liu, **Liangchen Luo**, Jindong Chen, Lei Meng.  
*arXiv preprint arXiv:2311.09179.* 2023.
5. Critique Ability of Large Language Models.  
**Liangchen Luo**, Zi Lin, Yinxiao Liu, Lei Shu, Yun Zhu, Jingbo Shang, Lei Meng.  
*arXiv preprint arXiv:2310.04815.* 2023.
4. Bridging the Gap Between Object Detection and User Intent via Query-Modulation.  
 Marco Fornoni, Chaochao Yan, **Liangchen Luo**, Kimberly Wilber, Alex Stark, Yin Cui, Boqing Gong, Andrew Howard.  
*arXiv preprint arXiv:2106.10258.* 2021.
3. Large-Scale Generative Data-Free Distillation.  
**Liangchen Luo**, Mark Sandler, Zi Lin, Andrey Zhmoginov, Andrew Howard.  
*arXiv preprint arXiv:2012.05578.* 2020.
2. Image Segmentation via Cellular Automata.  
 Mark Sandler, Andrey Zhmoginov, **Liangchen Luo**, Alexander Mordvintsev, Ettore Randazzo, Blaise Agüera y Arcas.  
*arXiv preprint arXiv:2008.04965.* 2020.
1. MUSE: Parallel Multi-Scale Attention for Sequence to Sequence Learning.  
 Guangxiang Zhao, Xu Sun, Jingjing Xu, Zhiyuan Zhang, **Liangchen Luo**.  
*arXiv preprint arXiv:1911.09483.* 2019.

## Professional Service

- Program committee member, the AAAI Conference on Artificial Intelligence (AAAI). 2020.
- Program committee member, the Annual Meeting of the Association for Computational Linguistics (ACL). 2019.
- Program committee member, the Conference on Language Modeling (COLM). 2024.
- Program committee member, the Conference on Empirical Methods in Natural Language Processing (EMNLP). 2019.
- Program committee member, the International Conference on Learning Representations (ICLR). 2021, 2024.

- Program committee member, the International Conference on Machine Learning (ICML). 2023, 2024.
- Program committee member, the Conference on Neural Information Processing Systems (NeurIPS). 2023, 2024.