Cheng Lu

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Experience

OpenAI L.P.   Feb 2024 – Present
Member of Technical Staff   *San Francisco, CA*
- Strategic Explorations team

Education

Tsinghua University   Sep 2019 – Dec 2023
*PhD in Computer Science and Technology, supervised by **Jun Zhu***   *Beijing, China*

Tsinghua University   Sep 2015 – Jul 2019
BE in Computer Science and Technology   *Beijing, China*

Honors & Awards

Outstanding Doctoral Thesis, Tsinghua University	2024
Beijing Outstanding Graduates	2024
Zhong Shimo Scholarship	2023
China National Scholarship	2023
ByteDance Scholarship	2023
'84' Future Innovation Scholarship, Tsinghua University	2020
Outstanding Graduates, Department of Computer Science and Technology, Tsinghua University	2019
The Mathematical Contest in Modeling, Meritorious Winner	2018
Chinese Mathematical Olympiad (CMO), Silver Medal	2014

Research Highlight

sCM: *Simplifying, Stabilizing and Scaling Continuous-Time Consistency Models*   2024
- Continuous-time consistency models with sample quality comparable to leading diffusion models in just two sampling steps.

DPM-Solver and DPM-Solver++   2022
- Training-free fast samplers for diffusion models, within only 10 to 20 steps.
- Widely-used in various text-to-image diffusion models, such as stable-diffusion (v1, v2, XL and LoRA variants), DreamStudio, StableBoost, Stable-Diffusion-WebUI, Apple's Core ML library, Stability-AI's DeepFloyd-IF.

ProlificDreamer   2023
- High-fidelity text-to-3D generation with solely 2D diffusion models. Greatly outperforms all previous works, such as Dreamfusion and Magic3D.
- Propose *variational score distillation*, a principled score distillation algorithm, suitable for both 2D and 3D.

Publications

Publications

- Shen Nie, Hanzhong Allan Guo, **Cheng Lu**, Yuhao Zhou, Chenyu Zheng, Chongxuan Li. *The Blessing of Randomness: SDE Beats ODE in General Diffusion-based Image Editing.* International Conference on Learning Representations (**ICLR**), 2024.
- Huayu Chen, **Cheng Lu**, Zhengyi Wang, Hang Su, Jun Zhu *Score Regularized Policy Optimization through Diffusion Behavior.* International Conference on Learning Representations (**ICLR**), 2024.
- Zhengyi Wang*, **Cheng Lu***, Yikai Wang, Fan Bao, Chongxuan Li, Hang Su, Jun Zhu. *ProlificDreamer: High-Fidelity and Diverse Text-to-3D Generation with Variational Score Distillation.* Conference on Neural Information Processing Systems (**NeurIPS**), 2023. **(Spotlight)**
- Kaiwen Zheng*, **Cheng Lu***, Jianfei Chen, Jun Zhu. *DPM-Solver-v3: Improved Diffusion ODE Solvers with Empirical Model Statistics.* Conference on Neural Information Processing Systems (**NeurIPS**), 2023.

- Tianyu Pang, **Cheng Lu**, Chao Du, Min Lin, Shuicheng YAN, Zhijie Deng. *On Calibrating Diffusion Probabilistic Models*. Conference on Neural Information Processing Systems (**NeurIPS**), 2023.
- Hanzhong Allan Guo, **Cheng Lu**, Fan Bao, Tianyu Pang, Shuicheng YAN, Chao Du, Chongxuan Li. *Gaussian Mixture Solvers for Diffusion Models*. Conference on Neural Information Processing Systems (**NeurIPS**), 2023.
- **Cheng Lu***, Huayu Chen*, Jianfei Chen, Hang Su, Chongxuan Li, Jun Zhu. *Contrastive Energy Prediction for Exact Energy-Guided Diffusion Sampling in Offline Reinforcement Learning*. International Conference on Machine Learning (**ICML**), 2023.
- Kaiwen Zheng*, **Cheng Lu***, Jianfei Chen, Jun Zhu. *Improved Techniques for Maximum Likelihood Estimation for Diffusion ODEs*. International Conference on Machine Learning (**ICML**), 2023.
- Huayu Chen, **Cheng Lu**, Chengyang Ying, Hang Su, Jun Zhu. *Offline Reinforcement Learning via High-Fidelity Generative Behavior Modeling*. International Conference on Learning Representations (**ICLR**), 2023.
- **Cheng Lu**, Yuhao Zhou, Fan Bao, Jianfei Chen, Chongxuan Li, Jun Zhu. *DPM-Solver: A Fast ODE Solver for Diffusion Probabilistic Model Sampling in Around 10 Steps*. Conference on Neural Information Processing Systems (**NeurIPS**), 2022. **(Oral, Accept rate ~1.7%)**
- **Cheng Lu**, Kaiwen Zheng, Fan Bao, Chongxuan Li, Jianfei Chen, Jun Zhu. *Maximum Likelihood Training for Score-Based Diffusion ODEs by High Order Denoising Score Matching*. International Conference on Machine Learning (**ICML**), 2022.
- **Cheng Lu**, Jianfei Chen, Chongxuan Li, Qiuhao Wang, Jun Zhu. *Implicit Normalizing Flows*. International Conference on Learning Representations (**ICLR**), 2021. **(Spotlight, Accept rate ~5.5%)**
- Jianfei Chen, **Cheng Lu**, Biqi Chenli, Jun Zhu, Tian Tian. *VFlow: More Expressive Generative Flows with Variational Data Augmentation*. International Conference on Machine Learning (**ICML**), 2020.

Preprints
- **Cheng Lu**, Yuhao Zhou, Fan Bao, Jianfei Chen, Chongxuan Li, Jun Zhu. *DPM-Solver++: Fast Solver for Guided Sampling of Diffusion Probabilistic Models*. 2022.

Services

- Reviewer: ICML, NeurIPS, ICLR, CVPR, ICCV, ECCV, IJCV
- Contributor of `huggingface/diffusers`

Technical Skills

Languages: Python, JavaScript, HTML/CSS, C/C++

Frameworks: Vue.js, Flask

Personal

- I was a bass singer in the Chorus of Tsinghua University. I won the **top ten campus singers competition of Tsinghua University** in 2019 by singing a famous jazz song *Autumn Leaves*. I love singing!