Ke Lin

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Education

Tsinghua University **Sep. 2022 – present**
Master of Engineering (M.Eng.) in Software Engineering *Peking, China*

Tsinghua University **Sep. 2018 – Jun. 2022**
Bachelor in Software Engineering (GPA: 3.69/4.0, Top 20%) *Peking, China*

Experience

Momenta **Jan. 2021 – Apr. 2021**
AI Backend DevOps Intern *Peking, China*

- Developed an automated service for scheduling autonomous driving model training tasks based on Kubernetes.
- Utilized Golang to reduce redundant resource consumption and estimated the approximate cost of training sessions.
- Processed the runtime logs of training tasks and stored them into AWS Cloud Storage for visualization.
- Automated the deployment of driving models on AWS and the updating of the K8s image from the upstream repository.

Publications

- Yiyang Luo*, Ke Lin*, and Chao Gu. "Lost in Overlap: Exploring Watermark Collision in LLMs." Under review at ACL 2024.
  - Proposed the concept of watermark collisions, where multiple watermarks are present simultaneously in the same text.
  - Analyzed the potential risks and the vulnerability of existing watermarking techniques.
- Ke Lin, Yiyang Luo, et al. "Zero-shot Generative Linguistic Steganography." Submitted to NAACL 2024.
  - Presented a zero-shot approach for linguistic steganography based on in-context learning using samples of covertexts.
  - Improved both the binary coding process and the embedding process by differential coding and annealing penalty.
  - Designd several metrics and language evaluations to evaluate both the perceptual and statistical imperceptibility.
- Yiyang Luo*, and Ke Lin*. "PISA: Point-cloud-based Instructed Scene Augmentation." arXiv preprint arXiv:2311.16501 (2023). Under review at ECCV 2024.
  - Designed a GPT-aided data pipeline for paraphrasing the descriptive texts in ReferIt3D dataset to generative ones.
  - Proposed an end-to-end multi-modal diffusion model for generating in-door 3D objects into specific scenes.
  - Introduced the visual grounding task to assess the quality of an augmented scene along with other metrics.
- Ke Lin and Ping Luo. "Skipping Scheme for Gate-hiding Garbled Circuits." arXiv preprint arXiv:2312.02514 (2023).
  - Proposed an effective scheme at runtime for gate-hiding garbled circuits, which skips inaccessible execution pathways and promotes parallelism on the fly.
- Glani Yasir, Ping Luo, Ke Lin, et al. "AyatDroid: A Lightweight Code Cloning Technique Using Different Static Features." 2023 IEEE 3rd International Conference on Software Engineering and Artificial Intelligence (SEAI). IEEE, 2023.

Projects

Farthest Point Sampling Library | *Python, Rust, C++* **Sep. 2023**

- Developed a high-performance farthest point sampling library `fpsample` for Numpy arrays.
- Achieved 100× faster than vanilla implementation in pure Numpy for simplified preprocessing of 3D point clouds.
- Published PyPI packages for easy use in x64 platforms to avoid multi-language compilations.

Multilingual Sentence Aligner | *Python* **Jun. 2022**

- Developed a toolkit for automated multilingual sentence alignments to break long texts into smaller aligned pieces.
- Utilized dynamic programming to align sentences with similar semantic scores and skip irrelevant content.
- Visualized the aligned multilingual sentences in a two-column fashion for fast lookup of certain sentences.

Relevant Coursework

- Data Structures
- Database Management
- Artificial Intelligence
- Software Engineering
- Computer Network
- Applied Cryptography
- Natural Language Proc.
- Computer Vision

Technical Skills

Languages: Python, Rust, C++, Java, Golang, ReactJS, SQL
Technologies/Frameworks: PyTorch, Ubuntu, ArchLinux, PostgreSQL