Likun Cai

cailikun007@gmail.com / +86 130 2218 5192 / https://cailk.github.io/
Google Scholar: https://scholar.google.com/citations?user=5r6IM_gAAAAJ&hl=en
LinkedIn: https://www.linkedin.com/in/likun-cai-9307551b2/

RESEARCH INTERESTS

- Machine learning & deep learning
- Computer vision
- Information theory

EDUCATION

ShanghaiTech University, China — Sep. 2017 - Jul. 2020
Master of Science, Computer Science, GPA: 3.57/4.0
- Research on machine learning, generative models, and information theory with Prof. Ning Cai.

Xidian University, China — Sep. 2013 - Jul. 2017
Bachelor of Engineering, Communication Engineering, GPA: 3.6/4.0

RESEARCH EXPERIENCE

Xiaohongshu — Nov. 2023 - Present
Research Intern with Ziheng Zhang
- Research on large-scale vision-language pre-training with improved loss functions. The paper is currently under review in ECCV 2024.

VDI Center, ShanghaiTech University — Mar. 2023 - Aug. 2023
Research Assistant with Prof. Hao Wang
- Investigated bi-level optimization and its applications in self-supervised learning.

Amazon AI Lab — Dec. 2020 - Jul. 2022
Applied Scientist Intern with Yi Zhu and Mu Li
- Constructed a new large-scale benchmark called BigDetection for general 2D object detection pre-training.
- Investigated masked image modeling, language-guided open vocabulary 2D object detection methods, and pixel-level information clustering for unsupervised semantic segmentation.

Tencent GYLab — Apr. 2020 - Aug. 2020
Research Intern with Gang Yu
- Investigated generative makeup transfer models with 3D information.
- Contributed to makeup transfer application on mobile devices by pre-processing face dataset and training tailored style-GAN.

PUBLICATIONS

Yijie Zhou, **Likun Cai**, Xianhui Cheng, Qiming Zhang, Xiangyang Xue, Wenchao Ding, and Jian Pu. "OpenAnnotate2: Multi-modal Auto-annotating for Autonomous Driving." *Accepted in IEEE Transactions on Intelligent Vehicles.* 2024.

Yijie Zhou, **Likun Cai**, Xianhui Cheng, Wenchao Ding, Xiangyang Xue, and Zhongxue Gan. "OpenAnnotate3D: Open-Vocabulary Auto-Labeling System for Multi-modal Data." *International Conference on Robotics and Automation.* 2024.
[paper] [code]

Likun Cai, Zhi Zhang, Yi Zhu, Li Zhang, Mu Li, and Xiangyang Xue. "BigDetection: A Large-scale Benchmark for Improved Object Detector Pre-training." *CVPR Workshop on Vision Datasets Understanding.* 2022.
[paper] [code]

Likun Cai, Yanjie Chen, Ning Cai, Wei Cheng, and Hao Wang. "Utilizing Amari-Alpha Divergence to Stabilize the Training of Generative Adversarial Networks." *Entropy.* 2020.
[paper] [code]

Chen, Yanjie, **Likun Cai**, Wei Cheng, and Hao Wang. "Super-Resolution Coding Defense Against Adversarial Examples." *International Conference on Multimedia Retrieval.* 2020.
[paper]

ACADEMIC SERVICES	**Reviewer** The 2nd CVPR Workshop on Vision Datasets Understanding, 2023
TEACHING EXPERIENCE	**ShanghaiTech University**

	Teaching Assistant in Digital Communication	Fall 2019
	Teaching Assistant in Information Science and Technology	Spring 2019

SKILLS	**Programming:** Python, PyTorch, TensorFlow, Matlab. **Languages:** Chinese, English: IELTS 7.0 (R 7.5; W 7.0; L 6.5; S 6.5)

蔡力坤

📞 (+86) 130-2218-5192 · ✉ cailikun007@gmail.com · ⭘ GitHub · ⌂ Website

研究兴趣

- 深度学习 & 机器学习；计算机视觉；信息论

教育背景

上海科技大学, 信息科学与技术学院, 工学硕士   2017.09 - 2020.07
- GPA: 3.57/4.0，导师：蔡宁

西安电子科技大学, 通信工程学院, 工学学士   2013.09 - 2017.07
- GPA: 3.6/4.0

工作经历

小红书 - 交易算法组, 算法实习生   2023.11 - 至今
- 视觉-文本多模态预训练模型研究：通过对 CLIP 类模型所用损失函数进行分析和优化，进一步提升了模型的表征能力以及多个下游任务的 zero-shot 性能。（论文投递至 ECCV 2024）

上海科技大学 - 视觉与数据智能中心, 科研助理   2023.03 - 2023.08
- Bi-level optimization 在机器学习以及自监督学习超参数优化中的应用预研

亚马逊上海 - AI Lab, 算法实习生   2020.12 - 2022.07
- 大规模 2D 目标检测预训练研究：在已有 2D 目标检测数据集的基础上构建了目前最大规模的预训练数据集 BigDetection，完成了数据的收集以及初步清洗，借助文本预训练模型（BERT）对不同数据集的标注文本进行映射融合并人工验证；提供了多个目标检测器（Faster R-CNN，CenterNet2，Swin Transformer 等）在提出数据集上的预训练参数
- 基于开放类别场景的多模态（视觉 & 文本）目标检测预训练预研

腾讯 - 光影实验室, 算法实习生   2020.04 - 2020.08
- 人脸妆容迁移算法研究：进行输入图片的人脸 Landmark 检测、对齐以及抠取等的一系列预处理，并协助进行基于 StyleGAN 的妆容迁移算法的调优
- 基于 3D 人脸重建算法以及 GAN 的人脸风格迁移模型预研

论文发表

Yijie Zhou, **Likun Cai**, Xianhui Cheng, Qiming Zhang, Xiangyang Xue, Wenchao Ding, and Jian Pu.
OpenAnnotate2: Multi-modal Auto-annotating for Autonomous Driving.
Accepted in IEEE Transactions on Intelligent Vehicles. 2024.

Yijie Zhou, **Likun Cai**, Xianhui Cheng, Zhongxue Gan, Xiangyang Xue, and Wenchao Ding.
OpenAnnotate3D: Open-Vocabulary Auto-Labeling System for Multi-modal 3D Data.
International Conference on Robotics and Automation (ICRA). 2024.
[paper] [code]

Likun Cai, Zhi Zhang, Yi Zhu, Li Zhang, Mu Li, and Xiangyang Xue.
BigDetection: A Large-scale Benchmark for Improved Object Detector Pre-training.
CVPR Workshop on Vision Datasets Understanding. 2022.
[paper] [code]

Likun Cai, Yanjie Chen, Ning Cai, Wei Cheng, and Hao Wang.
Utilizing Amari-alpha Divergence to Stabilize the Training of Generative Adversarial Networks.
Entropy. 2022.
[paper] [code]

Chen, Yanjie, **Likun Cai**, Wei Cheng, and Hao Wang.
Super-Resolution Coding Defense Against Adversarial Examples.
International Conference on Multimedia Retrieval. 2020.
[paper]

学术活动

Reviewer

- The 2nd CVPR Workshop on Vision Datasets Understanding, 2023

技术能力

- **编程语言**: Python, Matlab, Shell；Java, C
- **语言能力**：IELTS 7.0 （R: 7.5; W: 7.0; L: 6.5; S: 6.5）

其他实践

- 2019 春季学期上海科技大学信息科技导论课程助教
- 2019 秋季学期上海科技大学数字通信课程助教
- 上海科技大学 SWILD 2018 学术研讨会志愿者，上海 2019 创新创业大赛人工智能专题赛志愿者