

The 2023 Workshop on Machine Learning

会议程序册



上海大学
Shanghai University

2023年11月1号——2023年11月3号

为促进机器学习领域内的相互学习与交流，我们特别组织筹办了这次学术研讨会。

本次的会议地点为上海大学宝山校区，具体地址是：上海市宝山区上大路99号。出行建议：打车请说明到上海大学宝山校区北门，地铁请选择地铁7号线上海大学站2号口出口左转。

会议报告人（拼音序）

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李智 华东师范大学
沈超敏 华东师范大学
周一睿 上海大学
朱剑翔 上海大学

组委会（拼音序）

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会议日程

2023年11月1日（星期三）	
全天	报到注册

2023年11月2日（星期四）校本部 F420

上午			
报告时间	报告人	报告题目	主持人
8:00-8:30	开幕式		
8:30-10:00	沈超敏	CP3: Channel Pruning Plug-in for Point-based Networks	温智婕
休息			
10:05-11:35	沈超敏	CP3: Channel Pruning Plug-in for Point-based Networks II	温智婕
休息			
11:45-12:30	赖丹丹	Offline Robustness of Distributional Actor-Critic Ensemble Reinforcement Learning	彭亚新
午餐及休息			
下午			
13:30-14:30	李智	Medical Image Quality Enhancement and Segmentation with Deep Learning	温智婕
休息			
14:40-15:30	李智	Medical Image Quality Enhancement and Segmentation with Deep Learning II	温智婕
晚餐			

2023年11月3日(星期五)校本部 F420			
上午			
报告时间	报告人	报告题目	主持人
9:30-10:30	周一睿	Distributional generative adversarial imitation learning with reproducing kernel generalization	李颖
11:00-12:00	朱剑翔	View Optimization Based Place Recognition	李颖
午休			
下午			
14:30-17:30	自由讨论		

报告题目和摘要

CP3: Channel Pruning Plug-in for Point-based Networks

沈超敏

华东师范大学

In this talk, we propose a model called CP3, which is a Channel Pruning Plug-in for Point-based network. CP3 is elaborately designed to leverage the characteristics of point clouds and PNNs in order to enable 2D channel pruning methods for PNNs. Specifically, it presents a coordinate-enhanced channel importance metric to reflect the correlation between dimensional information and individual channel features, and it recycles the discarded points in PNN's sampling process and reconsiders their potentially-exclusive information to enhance the robustness of channel pruning. Experiments on various PNN architectures show that CP3 constantly improves state-of-the-art 2D CNN pruning approaches on different point cloud tasks.

Offline Robustness of Distributional Actor-Critic Ensemble Reinforcement Learning

赖丹丹

上海大学

In this talk, we propose the algorithm of Offline Robustness of Distributional actor-critic Ensemble Reinforcement learning (ORDER) to improve the robustness of policies. In ORDER, we introduce two approaches to enhance the robustness: i) introduce the smoothing technique to policies and distribution functions for states near the dataset; ii) strengthen the quantile network. In addition to improving the robustness, we also theoretically prove that ORDER converges to a conservative lower bound, which can alleviate the distribution shift. In our experiments, we validate the effectiveness of ORDER in the D4RL benchmark through comparative experiments and ablation studies.

Medical Image Quality Enhancement and Segmentation with Deep Learning

李智

华东师范大学

In this talk, we explore the domain of medical image analysis, where the influential impact of deep learning architectures comes to the forefront in addressing the intricate challenges posed by medical imaging. This methodology places significant emphasis on the vital necessity of capturing information at various scales to yield superior outcomes. Whether it's through the utilization of a recurrent gate module and a multi-scale module for polyp segmentation, the incorporation of an adaptive selection aggregation module to enhance feature fusion, or the integration of a dual-channel neural network that underscores the interactions between denoising and super-resolution tasks, which collectively underscore the transformative potential of deep learning.

Distributional Generative Adversarial Imitation Learning with Reproducing Kernel

Generalization

周一睿

上海大学

In this talk, we focus on the generalization and computational properties of policy classes. We prove that the generalization can be guaranteed in GAIL when the class of policies is well controlled. With the capability of policy generalization, we introduce distributional reinforcement learning (RL) into GAIL and propose the greedy distributional soft gradient (GDSG) algorithm to solve GAIL. The main advantages of GDSG can be summarized as: 1) Q-value overestimation, a crucial factor leading to the instability of GAIL with off-policy training, can be alleviated by distributional RL. 2) By considering the maximum entropy objective, the policy can be improved in terms of performance and sample efficiency through sufficient exploration. Moreover, GDSG attains a sublinear convergence rate to a stationary solution. Comprehensive experimental verification in MuJoCo environments shows that GDSG can mimic expert demonstrations better than previous GAIL variants.

View Optimization Based Place Recognition

朱剑翔

上海大学

Place recognition aims to retrieve the most similar scene in the geotagged scene database, so that the exact location of the given query scene can be determined. It plays a pivotal role in the computer vision and robotics communities, such as robot navigation. In this talk, we propose a novel multi-feature fusion network called the optimal perspective-based network.