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Open-World Learning: Challenges and Solutions

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摘要:
As an essential branch of artificial intelligence, machine learning has attracted widespread attention. While current learning methods have made certain progress in numerous fields, most of them are based on the "closed-world" assumption, which entails training and evaluation on idealized public benchmark datasets with known categories, precise annotations, and consistent distributions. Consequently, the resulting models tend to perform well only in ideal closed environments under predefined conditions, but their effectiveness is greatly compromised in real-world open scenarios and various complex non-ideal conditions. Therefore, to enable machine learning methods to be truely applicable to practical tasks, this talk focuses on learning problems in open environments, emphasizing the challenges posed by out-of-distribution data, label noise, insufficient annotations, and other common issues in real-world scenarios during model training. The ultimate goal is to enhance the generalization and robustness of algorithms in practical applications. Relevant work has been published in top-tier journals and conferences such as NeurIPS, AAAI, TPAMI, and TMM.

简介:
宫辰现任南京理工大学计算机科学与工程学院教授、博导；获国家级青年人才计划、江苏省杰青。于2010年获得华东理工大学学士学位，并分别于2016、2017年获上海交通大学和悉尼科技大学双博士学位。 已在世界顶级期刊或会议上发表100余篇学术论文，主要包括IEEE T-PAMI, IEEE T-NNLS, IEEE T-IP, IEEE T-CYB, ICML, NeurIPS, CVPR, AAAI, IJCAI, ICDM等，另有7项发明专利获得授权。 目前担任国际期刊IEEE T-CSVT、NN、NePL、FR、CJE编委，AIJ、JMLR、IEEE T-PAMI、IJCV、IEEE T-NNLS、IEEE T-IP、IEEE T-KDE等30余家国际权威期刊审稿人，以及ICML、NeurIPS、ICLR、CVPR、ICCV、ECCV、AAAI、IJCAI、ICDM等多个国际会议的(S)PC member。 曾获吴文俊人工智能优秀青年奖、中国科协“青年人才托举工程”、中国人工智能学会“优秀博士学位论文”奖、上海市自然科学二等奖、上海交通大学“优秀博士学位论文”奖、江苏省“六大人才高峰”、江苏省“双创博士”、江苏省科协“青年人才托举工程”、“香江学者”等， 并入选百度发布的全球华人AI青年学者榜单、斯坦福大学发布的全球前2%顶尖科学家榜单。