

作业要求



作业要求

- 1. 作业篇幅:中英文书写,5000字/词以上,使用给定模版
- **2. 提交时间**: 11月21日19:59前
- 3. 提交方式: PDF格式, 命名为"学号+姓名"; 暂定Moodle 提交, 若有变动, QQ群及时通知
- **4. 课堂报告**:有兴趣的同学可参与课堂报告,根据报告及作业质量期末酌情加分,报告时间后续通知
- **5. 选题要求**:从三个方向任意方向中选择一个课题,并且要求与大作业方向不一样





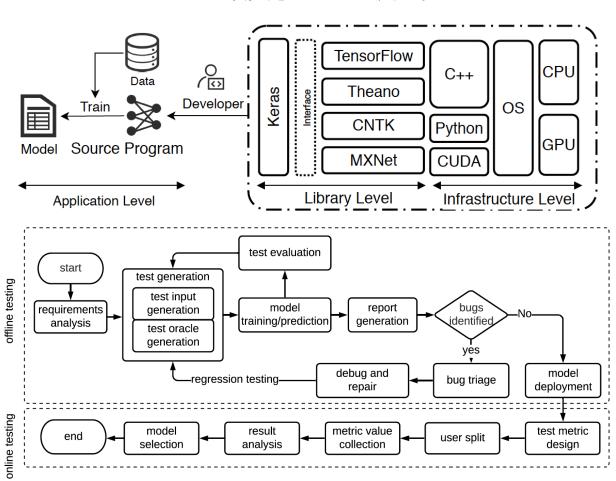
文献综述 AI测试选题

南京大学软件学院 iSE实验室



深度学习与AI测试











- 01. Image Augmentation
- 02. Text Augmentation
- 03. Lidar Augmentation
- 04. Testing for DL Frameworks /Libraries





Image Augmentation

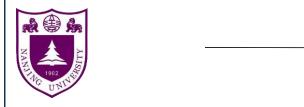




Image Augmentation

- 图像扩增的技术种类:图像处理?对抗?噪声?
- 图像扩增的对比:每个技术的优劣势
- 图像扩增的应用场景:医疗、交通、政务……
- 图像扩增的评估选择:精度优先?健壮性?.....*(实验证明)
- 图像扩增的理论依据:为什么可行? (理论证明)
- 图像扩增的应用价值:学术价值?工业价值?





Text Augmentation





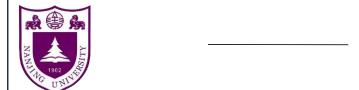
Text Augmentation

- 文本扩增的技术种类:词向量?对抗?结构不变?
- 文本扩增的对比:不同扩增手段擅长处理的问题是什么?
- 文本扩增的应用场景:翻译机测试、问题生成.....*
- 文本扩增的评估选择:相似树?向量距离? (实验证明)
- 文本扩增的理论依据:为什么可行? (理论证明)
- 文本扩增的应用价值: 学术价值? 工业价值?





Lidar Augmentation





Lidar Augmentation

- 雷达扩增的技术种类: GAN? 对抗攻击? 噪声?
- 雷达扩增的对比:不同扩增手段应用于激光雷达点云的优劣势与问题 是什么?
- 雷达扩增的应用场景:自动驾驶、军事探测、物体建模......
- 雷达扩增的评估选择:实例分割、3D物体检测、模型分类与检索.....* (实验证明)
- 雷达扩增的理论依据: 为什么可行?
- 雷达扩增的应用价值:学术价值?工业价值?





Lidar Augmentation

• 参考资料

https://en.wikipedia.org/wiki/Lidar

https://en.wikipedia.org/wiki/Point_cloud

http://lidarview.com/

http://www.cvlibs.net/datasets/kitti/

http://modelnet.cs.princeton.edu/

Review: Deep Learning on 3D Point Clouds

https://www.mdpi.com/2072-4292/12/11/1729/htm





Testing for DL Frameworks/Libraries





Testing for DL Frameworks/Libraries

- DL框架/库简化了开发过程,提供了大量算子/接口/组件……
- DL框架/库的缺陷有何影响: 崩溃? 计算错误?
- DL框架/库的缺陷由何产生:精度不够、算子不支持......
- DL框架/库的缺陷如何触发:测试输入?启发式引导?
- DL框架/库的缺陷如何捕获:崩溃检测? 差分测试?
- 测试DL框架/库的局限性:测试预言?效率?



72 Incorporating Label Embedding and Feature Augmentation for Multi-Dimensional Classification

74 A Task in a Suit and a Tie: Paraphrase Generation with Semantic Augmentation

75 Adversarial Zero-shot Learning With Semantic Augmentation

73 CatGAN: Category-Aware Generative Adversarial Networks with Hierarchical Evolutionary Learning for Category Text G

论文列表



https://docs.qq.com/sheet/DTWVWUIFmeW9va2hj

No.	Paper Title	Direction	Categor	y Venue	year						
1 Con	trastive Learning with Adversarial Examples	Al Testing	Image Augme	ntation NeurIPS	2020						
2 Adv	ersarial Learning for Robust Deep Clustering	Al Testing	Image Augme	ntation NeuriPS	2020						
3 Imp	3 Implicit Semantic Data Augmentation for Deep Networks Al Testing		Image Augme	21 StyleMix: Separating Content and Style for Enhanced Data Augmentation					Image Augmentation	CVPR	2021
			22 On Feature Normalization and Data Augmentation					Al Testing	Image Augmentation	CVPR	2021
4 Ger	4 Generalizing to Unseen Domains via Adversarial Data Augmentation Al Testing			Image Augmenta 23 KeepAugment: A Simple Information-Preserving Data Augmentation Approach					Image Augmentation	CVPR	2021
5 A B	5 A Bayesian Data Augmentation Approach for Learning Deep Models Al Testing			24 Rethinking Data Augmentation for Image Super-resolution: A Comprehensive Analysis and a New Strategy					Image Augmentation	CVPR	2020
0.00				25 Pathological Retinal Region Segmentation From OCT Images Using Geometric Relation Based Augmentation					Image Augmentation	CVPR	2020
6 Rea	6 Realist 45 Augmented LiDAR simulator for autonomous driving			Lidar Augmentation	E Robotics and Automati	ion Le 2020	Ī,	Al Testing	Image Augmentation	CVPR	2020
7 Sign	7 Signed 46 PointAugment: An Auto-Augmentation Framework for Point Cloud Classification			Lidar Augmentation	CVPR	2020					
8 Adv			Al Testing	Testing for DL Frameworks/Librarie		2021	tion for Text Recognition	Al Testing	Image Augmentation		2020
9 Adv	48 Graph-based Fuzz Testing for Deep Learning Inference Engines		Al Testing	Testing for DL Frameworks/Librarie		2021	1			CVPR	
9 Adv	To the Late of the desired and the desired and the desired base of the desired and the desired		Al Testing	Testing for DL Frameworks/Librarie	1000	2019	ļ-			CVFR	
10 Cou	50 Deep learning library testing via effective model generation		Al Testing	Testing for DL Frameworks/Librarie		2020	ļ l				
11 Sm:	51 Audee: Automated testing for deep learning frameworks		Al Testing	Testing for DL Frameworks/Librarie		2020	il Styles	Al Testing	Image Augmentation	CVPR	2020
	32 Eaveraging Documentation to rest Deep Earning Elbrary Functions		Al Testing	Testing for DL Frameworks/Librarie		2021	1				
13 Mul	53 Testing Machine Translation via Referential Transparency		Al Testing	Text Augmentation	ICSE	2021	rehensive Analysis and a New Strategy	Al Testing	Image Augmentation	CVPR	2019
14 Doe	Structure-invariant lesting for Machine Translation		Al Testing	Text Augmentation	ICSE	2020					
	SS Automatic lesting and improvement of Machine Translation		Al Testing	Text Augmentation	ICSE	2020	ledical Image Segmentation	Al Testing	Image Augmentation	CVPR	2019
15 A K		NTATION	Al Testing	Text Augmentation	ICASSP	2021	ical image segmentation	Al Testing	Image Augmentation	CVPR	2019
	57 Machine translation testing via pathological invariance		Al Testing	Text Augmentation	ESEC/FSE	2020	rial Data Augmentation in Human Pose Estimation	Al Testing	Image Augmentation	CVPR	2018
	8 SCHM 58 Semantic Equivalent Adversarial Data Augmentation for Visual Question Answering			Text Augmentation	ECCV	2020					
17 STF	59 UXLA: A Robust Unsupervised Data Augmentation Framework for Zero-Resource Cross-Lingual I	NLP	Al Testing	Text Augmentation	ACL	2021	ation	Al Testing	Image Augmentation		
18 AD\	/EF 60 HiddenCut: Simple Data Augmentation for Natural Language Understanding with Better Generaliz	ation	Al Testing	Text Augmentation		2021				CVPR	2018
10 10	- Of Tribusticus, Simple Data Augmentation for Natural Earlyange Orderstanding with Delice Generalize	ation	Airicating	Text Augmentation	ACL	2021	Islation	Al Testing	Image Augmentation	ACL	2020
19 Adv	19 Advers 61 Data Augmentation with Adversarial Training for Cross-Lingual NLI			Text Augmentation	ACL	2021		Al Testing	Image Augmentation	AAAI	2020
	62 Data Augmentation for Text Generation Without Any Augmented Data		Al Testing	Text Augmentation	ACL	2021					
20 Sup	63 A Survey of Data Augmentation Approaches for NLP		Al Testing	Text Augmentation	ACL	2021	age Classification with K-Means Features	Al Testing	Image Augmentation	AAAI	2020
	64 Good-Enough Compositional Data Augmentation		Al Testing	Text Augmentation	ACL	2020	letection	Al Testing	Image Augmentation	AAAI	2020
							ealistic Image Synthesis for Point-of-Sale Automation	Al Testing	Image Augmentation	AAAI	2019
	65 Syntactic Data Augmentation Increases Robustness to Inference Heuristics		Al Testing	Text Augmentation				Al Testing	Image Augmentation	AAAI	2019
	66 Counterfactual Data Augmentation for Mitigating Gender Stereotypes in Languages with Rich Mor	nhology	Al Testing	Text Augmentation	ACL	2019	er Data with Augmentation	Al Testing	Image Augmentation	AAAI	2019
		phology		rext Augmentation	ACL	2019	-			.,,,,,,	
	67 TextGAIL: Generative Adversarial Imitation Learning for Text Generation		Al Testing	Text Augmentation	AAAI	2021	3 Augmentation	Al Testing	Image Augmentation	AAAI	2019
	68 Improving Commonsense Causal Reasoning by Adversarial Training and Data Augmentation		Al Testing	Text Augmentation	AAAI	2021		Al Testing	Image Augmentation	AAAI	2018
	69 Commonsense Knowledge Augmentation for Low-Resource Languages via Adversarial Learning		Al Testing	Text Augmentation	AAAI	2021	1	Al Testing	Image Augmentation	AAAI	2017
	70 Random Erasing Data Augmentation		Al Testing	Text Augmentation			nproves Neural Network Training	Al Testing	Image Augmentation & Lidar Augmentation	CVPR	2021
					AAAI	2020	+				
	71 Multiple Data Augmentation Strategies for Improving Performance on Automatic Short Answer Sci	oring	Al Testing	Text Augmentation	AAAI	2020	1				

AAAI

AAAI

2020

2020

2019

Al Testing

Al Testing

Al Testing

Al Testing

Text Augmentation

Text Augmentation

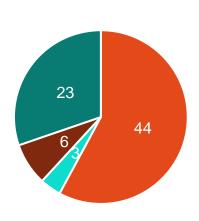
Text Augmentation



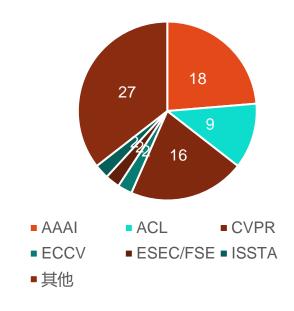
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https://docs.qq.com/sheet/DTWVWUIFmeW9va2hj



- Image Augmentation
- Lidar Augmentation
- Testing for DL Frameworks/Libraries
- Text Augmentation









AI测试助教联系方式

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欢迎感兴趣的同学 加入我们研究小组一起搞科研!