CV homework: document_scanner 代码报告

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1 任务场景概述

拍摄一张 A4 文稿照片,自动完成以下任务流:

角点检测→文档轮廓拟合→ 投影变换(单应性)→ 扫描风格增强

Github: https://github.com/fangzechu/cv homework1 doc scaner

2 依赖与环境

详见 requirements.txt

主要包: `opency-python`、`numpy`

3 方法与原理

流程步骤	采用方法	代码对应	
预处理与边缘检测	高斯模糊	cv2.GaussianBlur	
	Canny ($\sigma = 0.33$)	auto_canny	
	形态学闭运算	cv2.dilate/erode	
文档边界与角点定位	轮廓查找	cv2.findContours	
	多边形逼近	cv2.approxPolyDP	
	兜底旋转矩形		
	Shi - Tomasi 角点细化		
投影变换	4 对应点求 H,透视矫正	four_point_transform	
扫描风格增强	自适应阈值生成黑白扫描件	enhance_scanned()	
流程编排与存储	读图、尺度归一	scan_document()	

4 代码入口

color_p, bw_p = scan_document(sample_path, out_dir, debug=True)

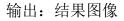
5 结果说明

输入: 原始拍照 (透视、旋转、阴影)



中间过程: Edges (Canny)、Corners (四角可视化)、放缩









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