Университет ИТМО, факультет программной инженерии и компьютерной техники
Двухнедельная отчётная работа по «Информатике»: аннотация к статье

Дата прошедшей лекции	Номер прошедшей лекции	Название статьи/главы книги/видеолекции	Дата публикации (не старше 2021 года)	Размер статьи (от 400 слов)	Дата сдачи
11.09.2024	1	Information Theory, Living Systems, Communication Engineering	18.05.2024	~5050	25.09.2024
25.09.2024	2	Research and Development of Data Compression Methods Based on Neural Networks	01.01.2023	~3122	09.10.2024
09.10.2024	3	Web Scraping or Web Crawling: State of Art, Techniques, Approaches and Application	03.11.2021	~9800	23.10.2024
23.10.2024	4	MarkupLM: Pre-training of Text and Markup Language for Visually-rich Document Understanding	11.03.2022	~2900	06.11.2024
06.11.2024	5	Automated analysis of malicious Microsoft Office documents	March 2022	~9900	20.11.2024
20.11.2024	6	Advancing OCR Accuracy in Image-to-LaTeX Conversion—A Critical and Creative Exploration	20.11.2023	~1100	04.12.2024
	7				

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Прямая полная ссылка на источник или сокращённая ссылка (bit.ly, tr.im и т.п.)
https://doi.org/10.3390/app132212503

Теги, ключевые слова или словосочетания (минимум три слова)
Optical Character Recognition (OCR), LaTeX, Active Learning Strategies Image-to-LaTeX Conversion, Natural Language Processing (NLP)

Перечень фактов, упомянутых в статье (минимум четыре пункта)
1. Optical character recognition (OCR) technology has made accessing and using textual data easier by enabling the conversion of handwritten or printed text into machine-readable forms.
2. The accurate recognition and conversion of mathematical expressions into LaTeX format is a significant challenge for OCR models due to the visual complexity of mathematical symbols.
3. Existing OCR approaches have struggled with handling the complexity of mathematical notation, leading to the exploration of NLP techniques to improve OCR accuracy in image-to-LaTeX conversion.
4. The main limitations of current OCR models in accurately recognizing and converting mathematical expressions are handling complex equations, visual similarity of mathematical symbols, and noise in input images.
5. Preprocessing techniques for image enhancement, such as noise reduction, contrast enhancement, binarization, thresholding, skew correction, and multimodal fusion, are crucial for improving OCR accuracy.
6. Post-processing techniques, like error detection and correction using language models and contextual analysis, are essential for further refining the accuracy of LaTeX conversions.
7. The sources emphasize that research in OCR for Image-to-LaTeX conversion requires continuous adaptation to the evolving technological landscape.

Позитивные следствия и/или достоинства описанной в статье технологии (минимум три пункта)
1. Increased Accessibility of Scientific Knowledge
2. Efficiency and Accuracy in Scientific Publishing
3. Improved Collaboration and Knowledge Sharing
4. Potential for Educational Advancements

Негативные следствия и/или недостатки описанной в статье технологии (минимум три пункта)
1. Over-Reliance on Technology and Loss of Human Expertise
2. Limited Handling of Complex or Non-Standard Notation
3. Accessibility Issues for Users Without LaTeX Knowledge
4. Security Concerns and Potential for Misuse

Ваши замечания, пожелания преподавателю *или* анекдот о программистах[1]

[1] Наличие этой графы не влияет на оценку