СЕКЦІЯ 2.
РОБОТИЗАЦІЯ І ЦИФРОВІЗАЦІЯ ОБЛІКУ ТА ПЕРСПЕКТИВИ ПІДГОТОВКИ МУЛЬТИКВАЛІФІКОВАНИХ БУХГАЛТЕРІВ

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INTELLIGENT DOCUMENT PROCESSING IN ACCOUNTING

In the field of accounting, documents such as invoices, bills, and client data—whether in physical form or scanned—remain a critical source of information. However, the manual processing of these documents is often tedious and time-consuming, leading to an inefficient use of human resources. This has prompted increasing interest in the development of intelligent document processing (IDP) systems that leverage advancements in information technology and artificial intelligence (AI). Researchers and industry stakeholders are now focusing on automating repetitive and mundane tasks through sophisticated technologies, aiming to enhance productivity. Supported by substantial private investment, these AI-driven solutions have the potential to revolutionize traditional document management, reducing human error and freeing accountants to focus on higher-level analytical tasks. This short paper explores the emerging benefits of intelligent document processing in accounting and the technological innovations pushing its development.

Benefits. Several papers elaborate on case studies on how automatic reading of data from digitize invoices, receipts, and financial statements facilitates data entry and analysis. For example, *Azman et al, 2021* provides details on a case study that involves a family-owned business distributing beer and non-alcoholic beverages, processing an average of 2000 invoices per month manually. The company faced issues with delays

in invoice processing due to a multi-tiered approval system that lacked centralization and visibility. To improve efficiency, they implemented automatic software for invoice management. This allowed for remote management, faster communication between branches, and cloud-based access for managers to approve and amend invoices.

New technologies. The given examples for small and medium enterprises are more significant when it comes to big corporations. The scale of costs reduction with document processing automatization creates offering of wide range of technological solutions for enterprises and spurs development of new AI-powered methods in research community. We share main breakthroughs within the last five years that enhance the performance of such solutions:

- **Do**cume**n**t **u**nderstanding **t**ransformer (DONUT): an innovative model of visual document understanding that utilizes an OCR-free end-to-end neural network model (see *Kim et al., 2022*);
- **LayoutLM** leverages the capabilities of optical character recognition (OCR) and visual layout analysis to understand the structure and content of different types of documents (see *Xu et al., 2020*).
- **L**arge **L**anguage **a**nd **V**ision **A**ssistant **(LLaVA):** a multimodal model connecting a vision encoder and LLM for visual and language understanding (see *Liu et al., 2024*).
- **Multimodal large language models (i.e., GPT 4o):** recently OpenAI set a benchmark in large language models that can understand and generate not only written texts but also speech, images and videos. While these models might be used for intelligent document processing, they have not been trained for this task. Their applications have some limits because of possible hallucination problems (inventing facts out of given context).

Conclusion. The benefits coupled with a rapid AI and hardware development lead to automatization of document text recognition and analysis that finds its direct applications in accounting and audit.

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