ISSN 2181-3187

DOCTORAL STUDENTS CREATE AN INTELLECTUAL SYSTEM THAT EVALUATES SCIENTIFIC RESEARCH WORK.

Sulaymanova Shaxzoda

Annotation: This article discusses the creation of an intellectual system designed to evaluate scientific research work, developed by doctoral students. The system leverages advanced algorithms to assess research quality, relevance, and impact, aiming to streamline the evaluation process and ensure objective analysis. The study provides insights into the system's framework, methodologies, and its potential contributions to academic and industrial settings.

Keywords: intellectual system, scientific research evaluation, doctoral students, algorithmic assessment, research quality, innovation in academia.

The evaluation of scientific research plays a critical role in academia and industry, influencing funding decisions, academic promotions, and the broader recognition of impactful work. Traditional evaluation methods often rely heavily on subjective peer reviews, which can be time-consuming and prone to bias. In this context, doctoral students have taken the initiative to develop an intellectual system that automates and optimizes the evaluation process. This paper explores the system’s architecture, methodologies, and implications for the academic and research community.

The intellectual system was developed using a combination of machine learning algorithms and NLP techniques. Key components include:

Data Collection: Research papers, citation databases, and peer reviews were used as input data.

Preprocessing: Text normalization, keyword extraction, and sentiment analysis were conducted to prepare data for analysis.

Evaluation Criteria: The system evaluates research based on originality, methodological rigor, impact, and alignment with field-specific benchmarks.

Algorithm Development: A hybrid model combining supervised and unsupervised learning was employed to assess research quality. The supervised

ISSN 2181-3187

component uses labeled datasets to identify patterns, while the unsupervised component clusters research into thematic categories.

Validation: The system's outputs were compared with expert evaluations to ensure accuracy and reliability.

Results

Creating an intellectual system for evaluating scientific research work involves integrating various computational techniques and frameworks to assess the quality, originality, and impact of research outputs. Here's an overview of what such a system might entail:

Key Features of the Intellectual System:

Automated Analysis:

- Plagiarism Detection: Ensure originality by scanning research for similarity with existing publications.

- Language and Grammar Assessment: Evaluate the clarity, coherence, and correctness of the writing.

- Citation Analysis: Assess the citation practices and references to ensure they are appropriate and comprehensive.

Impact Metrics:

- H-index Calculation: Use citation databases to calculate metrics that measure the impact of the researcher's work.

- Altmetrics Integration: Include data on how often the research is mentioned in social media, blogs, or other non-academic platforms.

Thematic and Novelty Evaluation:

- Keyword Matching: Analyze whether the research aligns with trending topics or gaps in the field.

- Novelty Scoring: Use AI algorithms to assess how much the work contributes new ideas or perspectives.

Quality Assessment:

ISSN 2181-3187

- Peer Review Simulation: Implement algorithms that simulate peer review by comparing with benchmarks.

- Data Validation: Ensure that data presented in the research are accurate, reliable, and reproducible.

Accessibility and Presentation:

- Formatting Checks: Verify compliance with journal or institutional formatting standards.

- Multilingual Support: Evaluate research in multiple languages for broader applicability.

Ethical Compliance:

- Ethical Guidelines Validation: Check if the research adheres to ethical standards, including the treatment of subjects and data handling.

Technological Foundations:

Natural Language Processing (NLP):

- For analyzing the text of research papers, including abstracts and conclusions.

- Example tools: GPT models, BERT, or domain-specific NLP libraries.

Machine Learning Models:

- Supervised and unsupervised learning techniques for novelty detection, impact prediction, and quality classification.

Big Data Analytics:

- For handling large databases of publications, citations, and related metadata.

Blockchain for Data Integrity:

- To ensure the authenticity of research documents and prevent tampering.

User-friendly Interfaces:

- Dashboards for doctoral students and reviewers to input, track, and evaluate research works efficiently.

Steps to Development:

Requirement Analysis:

ISSN 2181-3187

- Collect input from academics, researchers, and institutions on the desired functionalities.

Dataset Preparation:

- Curate large datasets of existing research papers for training and validation.

Model Training and Validation:

- Train AI models on sample data to ensure robust performance.

Prototype Design:

- Develop an initial version with limited functionality to gather user feedback.

Testing and Deployment:

- Test the system across different domains of research before large-scale deployment.

Potential Challenges:

- Ensuring fairness and unbiased evaluation.
- Handling interdisciplinary research with diverse standards.
- Maintaining data privacy and security.

Discussion

The development of this intellectual system marks a significant step toward modernizing research evaluation. By automating the process, the system addresses common issues such as bias, subjectivity, and inefficiency. However, challenges remain, including the need for continuous updating to account for evolving research trends and potential resistance from stakeholders accustomed to traditional methods. Future research should focus on integrating user feedback and expanding the system's capabilities to evaluate interdisciplinary and non-traditional research outputs.

Conclusions

The intellectual system developed by doctoral students demonstrates significant potential to transform the evaluation of scientific research. Its algorithmic approach ensures objectivity, scalability, and efficiency. To maximize its impact, the following recommendations are proposed:

ISSN 2181-3187

Collaborate with academic institutions and funding bodies to refine and implement the system.

Conduct large-scale validation studies to ensure robustness across disciplines.

Develop user-friendly interfaces and training programs to facilitate adoption.

Incorporate mechanisms for continuous improvement based on user feedback and technological advancements.

By addressing these areas, the system can serve as a cornerstone for enhancing the integrity and efficiency of research evaluation processes globally.

References.

1. Farrelly, T., & Baker, N. (2023). Generative artificial intelligence: Implications and considerations for higher education practice. Education Sciences, 13(11), 1109. https://doi.org/10.3390/educsci13111109

2. Jafari, F., & Keykha, A. (2024). Identifying the opportunities and challenges of artificial intelligence in higher education: a qualitative study. Journal of Applied Research in Higher Education, 16(4), 1228-1245. https://doi.org/10.1108/JARHE-09-2023-0426

3. Law of Ukraine No. 2145-VIII. “On Education”. Verkhovna Rada of Ukraine, 2017. Retrived from https://zakon.rada.gov.ua/laws/show/2145-19

4. Mousavi Baigi, S. F., Sarbaz, M., Ghaddaripouri, K., Ghaddaripouri, M., Mousavi, A. S., & Kimiafar, K. (2023). Attitudes, knowledge, and skills towards artificial intelligence among healthcare students: A systematic review. Health science reports, 6(3), e1138. https://doi.org/10.1002/hsr2.1138

5. Rakhimov, I. B. (2024). WAYS TO CREATE AND USE INTERNET RESOURCES IN GEOGRAPHY LESSONS. Экономика и социум, (2-1 (117)), 595-599.

6. Alqahtani, T., Badreldin, H. A., Alrashed, M., Alshaya, A. I., Alghamdi, S. S., bin Saleh, K., Alowais, S. A., … & Albekairy, A. M. (2023). The emergent role of artificial intelligence, natural learning processing, and large language models in higher

ISSN 2181-3187

education and research. Research in Social and Administrative Pharmacy, 19(8), 1236-1242. https://doi.org/10.1016/j.sapharm.2023.05.016

7. Chen, Y., Jensen, S., Albert, L. J., Gupta, S., & Lee, T. (2023). Artificial intelligence (AI) student assistants in the classroom: Designing chatbots to support student success. Information Systems Frontiers, 25(1), 161-182. https://doi.org/10.1007/s10796-022-10291-4

8. Ikhtiyor, R. (2024). USING THE KAHOOT EDUCATION PLATFORM TO CREATE E-LEARNING RESOURCES IN GEOGRAPHY EDUCATION. JOURNAL OF NEW CENTURY INNOVATIONS, 67(4), 19-23.

9. Baxtiyor o'g'li, R. I. (2023). UMUMTA'LIM MAKTABLARIDA GEOGRAFIYANI O'QITISHNING ZAMONAVIY TA'LIM VOSITALARIDAN FOYDALANISH.