Identifying Image Alterations:

A Systematic Approach to Enhancing Publication Integrity in Scientific Peer Review

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Abstract

This case study explores the systematic implementation of image screening protocols across multiple scientific journals to address image manipulation in scholarly publications. By analyzing data from 2020 to 2023 across four representative journals, we present key findings on detection rates, workflow optimization, and overall publication quality. Our results reveal that strategic image screening significantly boosts publication integrity while maintaining operational efficiency.

Introduction

The rise in sophisticated image manipulation techniques presents an ongoing challenge to scientific integrity in academic publishing. While previous research has highlighted the prevalence of image manipulation, few studies have explored systematic approaches to its detection and prevention at the editorial level. This case study addresses that gap by documenting the implementation of a comprehensive image screening service across multiple scientific journals, focusing on its impact on both editorial workflows and publication quality.

The Challenge

In 2020, a leading publisher with over 1,600 journals recognized the growing concerns around image manipulation in scientific manuscripts. With the need for a scalable solution that wouldn't overwhelm editorial offices, they partnered with Integra, an editorial support service provider, to develop and implement a robust image screening service. The primary objective was to combat image manipulation while ensuring the peer review process remained efficient and reliable.

Implementation Strategy

Integra collaborated with the publisher to screen images across approximately 164 journals, focusing on two critical intervention points:

“Recommend Accept” Stage: Pre-final acceptance.

“First Look” Stage: Post-acceptance, pre-production.

To measure the effectiveness of this initiative, we selected four journals (anonymized as A-D) representing different research areas and intervention points. Journals A and B implemented screening at the "recommend accept" stage, while Journals C and D focused on screening at the "First look" stage.

Methodology

The image screening process combined advanced imaging tools with expert visual inspection. The screening team assessed the following:

- Image integrity
- Potential manipulation
- Duplication issues
- Adherence to quality standards

These factors were examined in detail to detect even the slightest discrepancies that might compromise the publication's integrity.

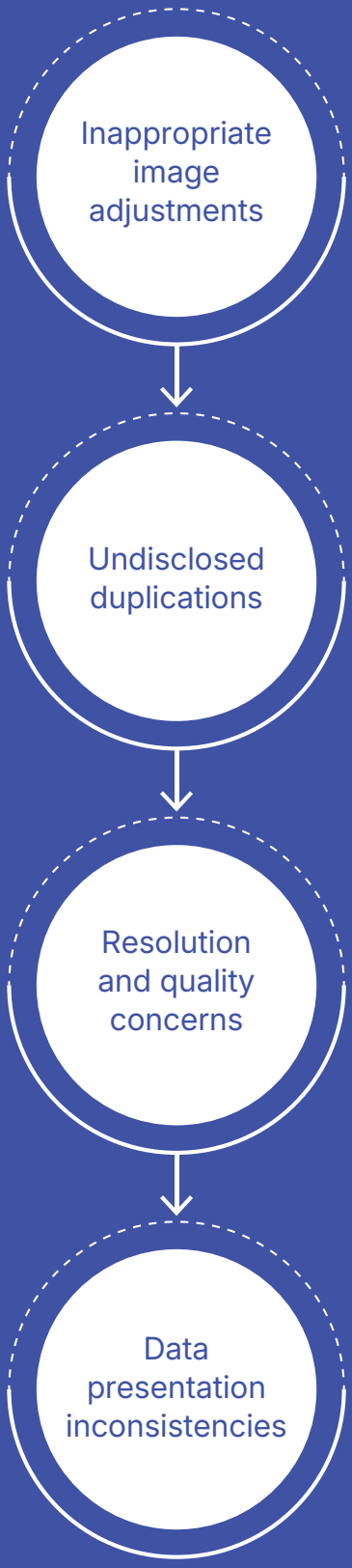
Findings

Over the three-year period from 2020 to 2023, several trends emerged:

- **Detection Rates:** There was a steady increase in the number of flagged images across all journals, with higher detection rates observed at the "First look" stage.

- **Discipline-Specific Variations:** Different research disciplines exhibited distinct patterns of manipulation, with some fields more prone to image alterations than others.

Common Issues Identified:



Impact on Editorial Office Operations

The implementation of image screening led to several improvements in editorial office operations:

- **Quality Enhancements:** Manuscript quality improved significantly pre-publication, leading to fewer post-publication corrections and a reduced risk of retractions.
- **Author Behavior:** There was a noticeable shift in author awareness regarding image integrity, with improved initial submissions and more proactive communication.
- **Editorial Process:** The image screening process enhanced decision-making support for editors, improved quality control, and fostered greater collaboration within editorial teams.

Lessons for Editorial Offices

Based on our experience, we offer the following implementation tips for editorial offices considering similar initiatives:

- **Start small:** Begin with a pilot project, focusing on a small number of journals.
- **Develop clear criteria:** Establish robust guidelines for assessing image integrity.
- **Invest in training:** Ensure staff and authors are well-trained in the screening process.
- **Create effective communication protocols:** Develop clear communication strategies for engaging with authors and editorial teams.

Resource Planning:

- **Invest in technology:** Consider investing in image screening tools and systems.
- **Plan for ongoing training:** Regular training ensures teams stay up to date with new techniques and tools.
- **Allow for workflow adjustments:** Be prepared to fine-tune workflows as the process evolves.

Change Management:

- **Communicate changes clearly:** Ensure all stakeholders understand the importance of the new procedures.
- **Monitor and adjust:** Track feedback and adjust processes as necessary.
- **Celebrate successes:** Acknowledge improvements and learn from challenges.

Looking Forward

The integration of image screening into the peer review process has proven crucial in maintaining the integrity of scientific publications. For editorial offices considering similar initiatives, we recommend the following:

- **Assessment:** Evaluate existing workflows, identify resource needs, and consider the specific requirements of different research disciplines.
- **Planning:** Develop clear protocols and training programs while planning for scalability.
- **Monitoring:** Regularly track key metrics, gather stakeholder feedback, and adjust processes based on emerging trends in the industry.

Conclusion

While the implementation of image screening initially posed challenges, the long-term benefits to scientific integrity and publication quality have been undeniable. For editorial offices looking to preserve the reliability of their publications, careful planning, clear communication, and continuous process refinement are essential. As image analysis technology evolves, maintaining adaptable and robust screening processes will be critical to upholding the trustworthiness of scholarly literature.

By implementing these strategies and investing in comprehensive image screening, publishers can ensure that their peer review processes not only maintain efficiency but also safeguard the quality and integrity of scientific publications for years to come.

At Integra, we celebrate editorial professionals and recognize the invaluable service they provide to the scholarly community. We empower them with our tools, acknowledging their crucial role in the curation and dissemination of research, which drives the advancement of human civilization. As a trusted partner, we offer editorial teams human-led, technology-assisted solutions for editorial, research integrity, and peer review management.

About the Author

Ankita Dutta is the Assistant Manager of Peer Review Services at Integra, a leading organization in scholarly publishing services. With a strong academic background and in-depth subject knowledge, Ankita has consistently excelled in meeting client expectations while fostering a dynamic team comprising both fresh talents and seasoned experts.

Her expertise spans multiple domains within peer review services. Ankita's vision is to bridge the gap between young minds passionate about science and the world of scholarly publishing, fostering a collaborative and innovative environment. Her commitment to quality and her ability to inspire her team make her a valued leader in the field.

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