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## **New Technologies Leading to a New Paradigm for All-Media News Production –Postprint: The People’s Daily AI Editorial Office 2.0 Enhancing Quality and Efficiency in Two Sessions Reporting**

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### **Abstract**

Artificial intelligence technology is developing rapidly, reshaping the landscape of news production, driving the transformation and upgrading of media convergence, and triggering an ‘intelligent transformation’ of media. With a focus on the broader landscape of in-depth media convergence development and transformation and upgrading, People’s Daily has delved deeply into the practical realities of contemporary all-media news reporting, pioneering innovation and empowering through intelligence. On the eve of this year’s Two Sessions, the newspaper upgraded and launched AI Editorial Office 2.0, integrating five new AI capabilities—cloud-based refined editing, intelligent review, intelligent posters, multi-modal retrieval, and one-click close-ups—combined with 5G+ edge computing technology to collectively enhance the quality and efficiency of the newspaper’s all-media Two Sessions reporting, as a tribute to the 100th anniversary of the founding of the Communist Party of China.

### **Full Text**

## **New Technologies Lead the New Model of All-Media News Production: People’s Daily AI Editorial Office 2.0 Enhances Quality and Efficiency in Two Sessions Reporting**

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**Abstract:** Artificial intelligence technology is developing rapidly, reshaping the landscape of news production, driving the transformation and upgrading of media convergence, and triggering “intelligent transformation” in the media. With a focus on the broader context of deep media convergence development

and transformation, and based on the practical realities of current all-media news reporting, People's Daily has taken the lead in innovation and intelligence empowerment. On the eve of this year's Two Sessions, the AI Editorial Office 2.0 was upgraded and launched, integrating five new AI capabilities: cloud-based fine editing, intelligent review, intelligent poster design, multi-modal search, and one-click close-up. Combined with 5G+edge computing technology, this upgrade comprehensively enhanced the quality and efficiency of the newspaper's all-media Two Sessions reporting, presenting a gift for the 100th anniversary of the Party's founding.

**Keywords:** People's Daily; AI Editorial Office 2.0; All-Media; Two Sessions Reporting

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In January 2019, General Secretary Xi Jinping emphasized during the 12th collective study session of the Political Bureau of the CPC Central Committee that we must “utilize the achievements of the information revolution to advance media convergence in depth” and “explore the application of artificial intelligence in news gathering, production, distribution, reception, and feedback to comprehensively enhance public opinion guidance capabilities” [1]. These strategic directives from the General Secretary provide fundamental guidance and a clear direction for media transformation and convergence.

For mainstream media, content remains the core and top priority, while frontier technologies such as AI and 5G represent the eternal driving force for revolutionizing content dissemination models and serve as crucial foundations and levers for media convergence and upgrading. Only by possessing both can we achieve long-term success. Resolutely implementing the Party Central Committee's decisions and deployments, People's Daily built upon last year's launch of the AI Editorial Office to actively explore new scenarios and applications that integrate the latest AI capabilities into the all-media news gathering and production workflow, addressing the innovative development needs of editors and journalists.

Since 2019, the Technology Department has fully utilized the “Code Farmer Society” platform, adopting a “bringing in and going out” approach to conduct dozens of in-depth exchanges with leading technology companies on frontier technologies such as AI and 5G, and has embarked on explorations in application areas including speech-to-text, news clipping, virtual anchors, header and masthead proofreading, and video/image tagging. On the eve of the 2020 National Two Sessions, the AI Editorial Office was officially launched, integrating capabilities of “viewing,” “listening,” “comprehending,” “reviewing,” and “searching” to comprehensively empower the newspaper's all-media Two Sessions reporting across print, web, app, microblog, and screen platforms, and has continued to support major reporting events such as the Service Trade Fair and the Import Expo.

After a year of careful refinement and iterative improvement, the AI Editorial Office welcomed its 2.0 upgrade on the eve of this year's Two Sessions, incorporating more "useful, user-friendly, and practical" AI capabilities that deeply align with editorial needs and directly address production pain points. This milestone represents another significant step in People's Daily's accelerated media convergence transformation driven by new technologies such as artificial intelligence.

## **2. Five New AI Capabilities + 5G: Empowering Digital-Intelligent Upgrade of Two Sessions Reporting**

With epidemic prevention and control remaining a priority and coinciding with the 100th anniversary of the Party's founding, this year's Two Sessions faced tight schedules, heavy tasks, and special significance, placing higher demands on reporting efficiency and quality. On the eve of the Two Sessions, People's Daily, together with Alibaba Cloud and China Mobile, upgraded and launched AI Editorial Office 2.0, integrating five new AI capabilities combined with 5G+edge computing technology to enhance quality and efficiency in all-media Two Sessions reporting.

### **1. Empowering with Intelligence: Accelerating Deep Media Convergence Development**

The maturation of 5G, big data, and deep learning technologies has provided wings for AI development, enabling more comprehensive and profound empowerment of the media industry. As the most popular technology today, artificial intelligence is driving media convergence forward like a prairie fire, and full human-machine collaboration or even deep integration will inevitably become the mainstream trend in future all-media news production. Facing this new situation, People's Daily keeps pace with the times, empowering with intelligence to actively build a new pattern of all-media gathering and production empowered by "AI+5G+4K/8K+VR," accelerating the construction of an intelligent communication system and advancing the newspaper's convergence transformation.

#### **2.1 Cloud-Based Fine Editing: Smooth and Efficient**

After AI intelligently processes high-definition video materials, frontline editors and journalists still need to perform fine editing tasks such as precise cutting, color grading, and special effects. However, personal laptops have limited computing power and cannot process these tasks on-site, requiring transmission back to the editorial team and thus affecting news production timeliness. By leveraging the characteristics of cloud desktops, we fully utilize cloud resources for computing and storage, ensuring compatibility with both Windows and Mac systems. The platform integrates mainstream non-linear editing tools such as Premiere, Dayang, and Xing 奥特, and employs the Citrix ICA data exchange

protocol to ensure efficient and smooth cloud desktop transmission. At Two Sessions news sites, frontline editors and journalists only need to click once to connect to the cloud desktop, pull and store live video streams from cloud broadcasting on the desktop, collaborate with the rear team, and perform fine editing operations directly before publishing to the newspaper's Weibo, WeChat, apps, People's Daily Online, and digital screens. This eliminates the cumbersome process of material transmission and subsequent communication for refinement, seizes reporting opportunities, and improves news production efficiency.

Figure 1 [Figure 1: see original paper] Cloud-Based Fine Editing Workflow for Two Sessions News Production

Additionally, when frontline editors and journalists produce ultra-high-definition video materials on the cloud desktop, they require not only greater computing power and faster storage but also quicker access speeds and more refined display effects. In collaboration with China Mobile, we attempted to accelerate cloud desktop access through 5G+edge computing technology during this year's Two Sessions reporting.

Figure 2 [Figure 2: see original paper] Architecture for Fast Cloud Desktop Access via 5G+Edge Computing Technology

Figure 3 [Figure 3: see original paper] Real-Time Speed Test Comparison Before and After Optimization

As shown in the figure above, cloud desktops are currently deployed in Hangzhou. Under normal procedures, editors accessing cloud desktops via 5G must pass through Beijing Mobile and China Mobile's core network before reaching the Internet, resulting in long delays and slow speeds. To enable fast access to cloud desktops, we optimized the transmission routing of cloud desktop applications within China Mobile's 5G core network, equipped the frontline reporting team with 5G SIM cards and 5G portable WiFi devices to achieve high transmission rates, low latency, and smoother experiences for rapid news product editing. Moving forward, we will continue to work with China Mobile and Alibaba Cloud to conduct new tests at edge computing nodes, attempting to deploy cloud desktop applications to China Mobile MEC's UPF nodes and perform related application optimizations. This aims to regularly solve problems such as high latency and large aggregated traffic, providing stronger support for real-time and bandwidth-intensive fine editing businesses and improving cloud desktop user experience.

## 2.2 Intelligent Review: Rigorous Quality Control

People's Daily's media convergence development has continuously achieved new progress, currently possessing multiple platforms including newspapers, periodicals, websites, apps, microblogs, and screens. All-media news materials come in diverse forms, and review is no longer limited to text proofreading. AI Editorial Office 2.0 addresses new situations and needs encountered by the newspaper's

all-media editorial departments in news production. By combining official massive public opinion and early warning big data platforms with intelligent visual algorithms, it achieves multi-dimensional understanding of video, audio, text, and image content, extracts structured tags, and realizes intelligent review of politically sensitive figures, dismissed officials, non-compliant scenes, and other content in all-media materials. This provides strong technical support and reference for the newspaper's all-media content review, effectively mitigating risks of adverse political impact due to manual review oversights.

Figure 4 [Figure 4: see original paper] Intelligent Review Function Architecture Diagram

During this year's Two Sessions, the newspaper produced the "Two Sessions Delegation Visits" video series, which included relevant video materials of General Secretary Xi Jinping's historical delegation visits during Two Sessions. The video involved numerous individuals with brief appearances, making manual frame-by-frame review extremely inefficient, requiring 2-3 days to complete. Using the intelligent review function of AI Editorial Office 2.0, initial screening of sensitive figures was completed within half an hour, dramatically improving review efficiency and saving substantial labor costs. The system successfully identified two dismissed officials and accurately annotated their appearance time segments, enabling editors to remove relevant clips and ensure political correctness in video reporting. During the Two Sessions, journalists and editors at all levels actively participated in co-creating the sensitive figure database, voluntarily providing over 200 sensitive figures they had collected. This positively contributed to expanding and improving the existing database, and the resulting improvement in review accuracy will better assist editors in their daily review work, fostering a preliminary ecosystem of mutual assistance and deep cooperation between humans and machines.

### 2.3 Intelligent Poster Design: Streamlined Creation

The intelligent poster system evolved from Alibaba's intelligent design system "Luban," which has completed 1 billion designs, and was innovatively transformed into a cloud service. The system consists of four core components: planner, actor, builder, and evaluator, corresponding to the four stages of graphic design: conceptual sketching, sketch refinement, visualization, and evaluation. Based on deep learning, the system extracts design experience from existing poster designs on specific themes—that is, it extracts implicit features such as background textures, layout color schemes, font sizes, design elements, and their relative positions from high-dimensional, massive poster data. Through extensive learning, it summarizes a universal design knowledge model. Constrained by this model, the system employs multi-agent reinforcement learning and Generative Adversarial Networks (GAN) to perform multi-dimensional expansion, transformation, and rearrangement of poster components such as elements, layouts, and background colors. After evaluation and selection, it intelligently constructs a vast template library of specific themes that are diverse in style yet

harmonious, aesthetically pleasing, and compliant with design standards. Editors can quickly retrieve corresponding theme templates based on production needs, and by simply replacing the core promotional images and text, they can rapidly generate and publish posters.

Currently, the intelligent poster system has built up a massive template library covering themes such as current political reporting, Party building propaganda, poverty alleviation, and nationwide epidemic prevention, assisting various reporting scenarios for People's Daily digital screens during Two Sessions, including new media promotion, policy popularization, and current affairs highlights. The intelligent poster system also provides editors and journalists with numerous auxiliary tools based on AI algorithms, including automatic background removal, color expansion, size expansion, cropping, and style variation. It enables automatic layout, color matching, and style setting, and facilitates rapid batch production, significantly improving design and production efficiency.

#### **2.4 Multi-Modal Search: Precise Retrieval**

To help editors and journalists find all-media materials more accurately and quickly, the multi-modal search function leverages underlying algorithmic capabilities in facial recognition, object recognition, speech recognition, natural language processing, OCR recognition, and video DNA. It uses AI's enhanced "comprehension" to strengthen semantic understanding and summarization of news materials, providing editors and journalists with intelligent text search, image search, video search, multilingual search, semantic search, and other business scenarios, rapidly improving news production efficiency.

#### **2.5 One-Click Close-Up: Focusing on Key Content**

The one-click close-up function can quickly crop 16:9 multi-person video materials from large conferences according to individual figures, intelligently generating single-person vertical videos while maintaining the integrity of key information. This focuses on the core content of videos, facilitates editing for short video platform publishing, and meets audience demands for watching individual figures and mobile viewing habits.

### **3. Application of AI Editorial Office 2.0 During the Two Sessions**

During this year's Two Sessions, AI Editorial Office 2.0 received extensive use and full recognition from departments and units including the New Media Center, People's Daily Online, and Digital Communication Company. Editors and journalists marveled at the significant improvements that new technologies brought to Two Sessions reporting models and efficiency. With the powerful combination of 5G and AI capabilities, Two Sessions reporting transformed from the traditional model of frontline shooting and rear production to an integrated process of planning, gathering, editing, and distribution. Frontline

journalists have become versatile media professionals who “fight on multiple fronts” single-handedly, shooting and editing on-site at the Two Sessions and publishing rapidly. Some short video reports require only a few minutes from production to distribution, greatly ensuring timeliness and first-publish rates for Two Sessions reporting.

Figure 5 [Figure 5: see original paper] 5G Portable WiFi Assisting Frontline Reporting at Two Sessions

Figure 6 [Figure 6: see original paper] Our Journalist Using AI Editorial Office 2.0 at the Ministers’ Corridor

The New Media Center used AI Editorial Office 2.0 to edit multiple key clips during the NPC press conference, representative channel, and ministers’ channel live broadcasts. The representative short video work— “Listen! Micro-Documentary of Two Sessions Voices” —achieved over 100,000 WeChat reads within 3 hours of release on People’ s Daily’ s Weibo, WeChat, and app, with over 5,000 likes. Within 4 hours, the Weibo topic #2-minute mix of 2021 Two Sessions good voices# became a trending search with over 26.24 million reads. The short video “People’ s Daily Journalists’ Two Sessions Reporting Black Technology” received over 9.075 million topic reads, 4 million Weibo reads, over 100,000 WeChat public account views, and over 1 million app plays. People’ s Daily Online used the platform to produce 6 episodes of “What Deputies and Members Say,” achieving over 10 million reads across channels including the People’ s Daily Online app, Douyin, and Weibo. They also utilized 5G networks at railway hotels and other locations for live connections with the People’ s Daily Online studio. People’ s Daily Digital Communication Company produced dozens of news posters such as “Reading Newspapers in a New Way,” leveraging the channel advantage of electronic newspaper reading boards covering Two Sessions venues to roll out high-frequency broadcasts nationwide. They edited over 20 “Two Sessions Time Guest” news short videos and secondary dissemination of more than 30 high-quality short video programs from subsidiary media.

#### 4. Outlook and Conclusion

The widespread application of AI Editorial Office 2.0 across People’ s Daily departments and units has significantly improved all-media Two Sessions reporting efficiency, producing numerous viral hits. It also represents the first combination of AI and 5G edge computing technologies at the newspaper, advancing People’ s Daily further along the path of convergence transformation and providing a reference model for media peers to adopt AI technology for all-media news production.

Moving forward, AI Editorial Office will support mobile production needs, enabling editors and journalists to produce and publish flexibly and efficiently anytime, anywhere using only a mobile phone or iPad. Additionally, the newspaper will integrate a cloud production and broadcasting solution into AI Editorial Office, utilizing cloud-based directing capabilities for efficient signal switch-

ing and production distribution. This can perfectly break through bottlenecks such as heavy asset investment in traditional studios, prominent delays, and difficulties in multi-location studio interaction and coordination, while easily handling application scenarios such as remote connection to news sites, sports event broadcasting, and remote guest access. Furthermore, cloud production and broadcasting can seamlessly integrate with existing functions such as live clipping, cloud fine editing, and one-click close-up, thereby completely integrating the entire production and broadcasting workflow of “multi-channel HD video signal recording—directing switching—multi-channel packaging production—multi-channel multi-form distribution.”

The era of “intelligent media” where everything is media and humans and machines coexist has arrived. People’ s Daily will maintain integrity while innovating, planning for the future, deeply exploring more AI application scenarios, continuously expanding the depth and breadth of AI empowerment for all-media news production, gradually establishing a complete, mature, and intelligent efficient full-process news production chain, and fully creating an intelligent media ecosystem with human-machine integration and simultaneous quality and quantity improvements. This will perfect the institutional mechanism for AI to assist the newspaper’ s all-media reporting in improving quality and efficiency, and better and faster promote the in-depth development of the newspaper’ s convergence transformation.

[1] Xinhua News Agency. Xi Jinping Presides Over the 12th Collective Study Session of the Political Bureau of the CPC Central Committee and Delivers Important Speech [EB/OL]. www.gov.cn, 2019-01-25. [http://www.gov.cn/xinwen/2019-01/25/content\\_{5361197}.htm](http://www.gov.cn/xinwen/2019-01/25/content_{5361197}.htm).

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*Note: Figure translations are in progress. See original paper for figures.*

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