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Artificial Intelligence and the Indian Newsrooms

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ABSTRACT: The first wave of Artificial Intelligence (AI) has started creating ripples in the newsroom — in chatbots, automated reporting systems and machine learning techniques which are sifting through massive data sets to write initial news reports. For those who still believe that AI and automation will not hit jobs in the media industry, just consider the kind of investments that media houses are now making in AI for the newsroom. Clearly, the next five to ten years would be decisive. Google has provided British news agency Press Association \$805,000 to build software that will gather, automate and write nearly 30,000 local stories a month. Dubbed as “Radar” (Reporters& Data &Robots), the software will “automate local reporting with large public databases from government agencies or local law enforcement”. South Korea’s Yonhap news agency has introduced an automated reporting system “Soccerbot” to produce news on football games. Associated Press and Thomson Reuters are using machine learning algorithms to write stories and The New York Times plans to automate its comment moderation. So whose jobs are at stake as AI-powered software becomes common in the newsroom?

KEYWORDS: Artificial, Intelligence, newsrooms, Press, Association, agency, machine, algorithms

I. INTRODUCTION

“For simple, factual-based news reporting and gathering — it is possible for AI-powered bots to do that. However, it’s less likely for point-of-view type of stories or feature articles that require more human input,” said Xiaofeng Wang, Senior Analyst at global research firm Forrester. Personalised communication at scale is one of the strengths that bots can deliver on more efficiently. “There are already bots designed for research purposes, but they act more like assistants to humans. When designing these bots, humans can define the purpose clearly and imagine a personality for it but the AI technology today still has limitations,” Wang told IANS. Carl Benedikt Frey and Michael Osborne, researchers at the University of Oxford, have predicted that the combination of robotics, automation, AI and machine learning would impact journalists too, among others. According to a survey by the University of Oxford and Yale University, AI would outperform humans in many activities in the next 10 years, such as translating languages , driving a truck ,writing a bestselling book ,and working as a surgeon in future .“There are dynamic changes happening and we as journalists can see that. AI and robots will write stories in the future and they will get better at doing it as humans will fine tune it,” noted Ramesh Menon, a senior journalist and author. “But the best stories will come from writer-journalists who can put in fine detail, empathy, drama, colour and analysis into their stories. What is good is that we can tomorrow get robots to do the routine stuff that today takes 80 per cent of the journalists’ time,” Menon told IANS.

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This can help reporters and editors concentrate on big ticket stories that require a lot of footwork in terms of getting to the right people, getting them to talk, analysing the present and even talk of the way forward, he emphasised. Researchers claim that there is a 50 per cent chance that machines will outperform humans in all tasks within 45 years. Yonhap's "Soccerbot" would write stories related to the English Premier League (EPL) football tournament. The system had a successful test in covering all games of the 2016-17 EPL season. It produced a total of 380 automatic experimental articles, each within one or two seconds of a game's end. The "Radar" software project at Press Association, scheduled to be launched will hire five journalists who will help identify datasets and curate and edit news articles generated by "Radar".

According to Rajeev Vaid, Chief Operating Officer and Co-Founder, machine Intelligence platform Kognetics, AI is now being used by leading global media houses for automation of press coverage. "In future, we expect to see a wide-scale use of automated systems to analyse content quickly, in real time, and produce insights in a consumable and usable format to the journalists," Vaid told IANS. The initial impact of AI on journalism would be seen at four levels: Content gathering, content creation, moderation and scale. "AI can be used to scan through structured and unstructured news corpus to gather information restricted to an area, territory or region. Similarly, it can be used to disseminate content to a targeted section with local news via Internet, social and print media," Vaid stressed. For Atul Rai, CEO and Co-Founder, Staqu, a Gurgaon-based AI startup, AI could be used in most of the domains which are data excessive but identifying fake news is another big challenge today for humans as well as bots. "Media is a domain where plenty of data is collected and created and, therefore, it is easier to use these data points to create stories. I would reiterate that the problem set is not to create news or content but is filtering out the malicious, fake and rumoured content or news," Rai told IANS.

As the media fraternity prepares for a new reality, the news business would only ramp up incorporating the AI-based tools into the newsroom. "Though many if us are apprehensive today, it may not be such a bad thing. Good journalists will always have jobs; no one can replace them in the world of tomorrow as they would be needed more than ever," Menon said. For Wang, AI would help journalists work more efficiently if they know how to use (not create) these bots. "Bots are not ready to replace journalists yet.

With the advancements in information and communication technologies (ICTs), news media industries have undergone sea changes. Moreover, the emergence of artificial intelligence (AI) and machine learning has redefined the implications of technologies in numerous fields. The field of journalism is no exception to it. The rise of the robot reporter and automated journalism has made inroads in the area of news and journalism. As of today, digital media has intensified the dissemination of news manifold. The process from production to consumption of news stories has slowly witnessed the newer technological adoption. The production, distribution, and consumption in journalism have been influenced by the use of newer technologies even in India.

From Reporting on AI to Reporting to AI

Not to state the obvious but we do live in an alarmingly digitized world. Everywhere you look, it's AI this and AI that. As journalists, media persons often report on the latest technological advancements, research breakthroughs, their applications and so on. But even as they stand on the periphery, it's time to acknowledge that they're actually

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in the midst of the digital overhaul themselves. In probably the first of its kind, IIIT-H conducted a 2 day-long workshop on AI especially for journalists.

The workshop aimed at simplifying and explaining some of the basic concepts of AI while looking at its use cases across various fields, including Journalism. Several senior editors and correspondents from leading publications and media houses across India attended the workshop.

Prof. P J Narayanan in his inaugural address explained that one way to reach out to different sections of society to educate them about AI, was to achieve it via educating the media. While acknowledging the strength of the institute in all fields of AI, he said that this (workshop) would help in reducing the misconceptions that people carry in their minds about AI. He added, “We would try to reach even other fields to educate them about AI and its advantages. So these seminars would mostly concentrate on what AI has achieved so far and to what point AI can reach.”

Laying The Context

Turing award winning computer scientist and Chairman of IIIT-H’s Governing Council Prof Raj Reddy, set the tone of the workshop at the inaugural session by speaking about the world being created by computers and its implications.

Prof. P J Narayanan kicked off the series of lectures by tracing the evolution of machines from the industrial revolution to the digital revolution in the money and banking sphere and other Government-led citizen services. Terming AI as another addition to the types of intelligences – perceptual, language, social and cognitive – that evolve as a child grows into an adult, Prof. PJN chronicled the methods used in AI over the years. Where once hand-designed representation and reasoning was used to encode data, it has moved even beyond mere machine learning to now deep learning requiring huge amounts of data and computing capabilities. For all the concerns about accountability and transparency of AI, loss of privacy and replacement of humans, he advocated caution in dealing with its unsavoury side. Finally he concluded by remarking that AI must not be left to only techies and urged people from the Social Sciences to get involved too. Dr. C.V Jawahar, Head of the Centre for Visual Information Technology (CVIT) and Dean (R&D) made an attempt to demystify modern AI. With some examples of AI applications originating from research out of CVIT such as a city-scale road audit system that locates potholes and water logging, to sports analytics, Prof. Jawahar also put the spotlight on the latest buzz at the IEEE Conference on Computer Vision and Pattern Recognition (CVPR): Inverse Cooking – an AI technique that uses food images to generate recipes. While discussing trends on why AI is becoming more popular now, he showcased applications in the real world, from driverless cars to robot-assisted surgeries. Leaving the session open-ended for highly-interactive discussions on the other face of AI, he concluded with insights gained from studies indicating biases in automated systems.

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II. DISCUSSION

Applications of AI

Health

One of the significant advances of AI is in the healthcare space. Dr. Radha Rangarajan, Head, Innovation and Strategy at the Ojas Medtech Incubator spoke about how AI uses both structured and unstructured data in the healthcare context from medical notes, recordings from electronic devices, physical examinations, to clinical laboratory reports and images to learn features. Giving examples of FDA approved algorithms, she spoke about how AI is useful in drug discovery and how it can speed up drug development. To whether AI could replace a doctor, she said it would only help them make better decisions by prioritizing case load, recommending the appropriate diagnostic tests and so on. But she added that areas such as Radiology would probably see the greatest churn with algorithms providing more accuracy. Ramesh Loganathan, COO and Prof. Co-Innovation spoke about Ojas, and how the need to set up a dedicated medtech incubator was felt with a rising number of startups in the medical sphere.

Rural and Urban Habitat

There was a combined session on AI uses in the habitat, that included agricultural land, urban areas and issues plaguing them. Prof. P. Krishna Reddy from the IT Centre for Agricultural Research flagged it off by talking about data science based systems to provide agricultural advice to farmers. He listed out two such tools – eSagu, an agro-advisory system that works at the farm as well as the village level by using coloured photographs of the crops, and Crop Darpan, a smart-phone based application that serves as a crop diagnostic tool for farmers. From the Research Lab for Spatial Informatics, Dr. K.S. Rajan spoke about managing crowds effectively through the deployment of smart CCTV cameras, citing the example of its use in resource management and mobilization during the last Godavari Pushkaralu (in Andhra Pradesh). He also described a unique and prize-winning road monitoring system they developed that used smartphones as a data collection platform. Speaking about the applications of AI and ML in building energy efficiency, Prof. Vishal Garg from the IT Centre for Building Sciences demonstrated the use of eDoT- an early Design Optimization Tool where one can input certain parameters such as floor area, location, specify controls for daylight or internal blinds and receive output in the form of various recommended strategies that could be useful in the early design stages of any architectural project. He went on to describe smart power strips with a device identification capability that can be used for efficiently monitoring and controlling plug loads, thereby resulting in reduction of losses and better load prediction.

Language, Speech and Journalism

If you're wondering what language has to do with AI, then Prof. Dipti Misra amply demonstrated how with the proliferation of devices around us, natural language processing fits in with respect to smartphones, smart cars, virtual assistants and more. With 22 scheduled Indian languages, one of the major goals of the Language Technologies Research Centre (LTRC) is to develop technologies to overcome barriers to language. Showcasing applications across domains such as Agriculture, Healthcare, Education, News, Tourism and so on, Prof. Misra spoke about how LTRC is engaged in efficient dialogue systems, sarcasm detection and more in an effort to make machines sound and respond just like humans.

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Speaking about the work undergoing in the Information Retrieval and Extraction Lab, Prof. Vasudeva Varma listed out various technologies used in computational journalism. He put the spotlight on work close to the journalists' heart such as automatic commentary or news generation from videos, news translation, news summarization, detection of fake, weird and bizarre news, as well as news recommendation and summarization. He rounded off his talk by demonstrating how the Fake-o-Meter tool developed by them overcomes current limitations of existing content verification solutions.

Implications of AI to the workforce

Day 2 of the workshop began by looking at artificial intelligence from the socio-economic perspective. Dr. Radhika Krishnan from the Centre for Exact Humanities laid the ground for discussions to follow by sharing the McKinsey and Nasscom reports on percentages of jobs affected by the advent of AI across various sectors and domains. One way to remain relevant in these times is to invest in reskilling or acquiring new skill sets, she said. Prof. Nimmi Rangaswamy, anthropologist, Social and Human Applications for AI (SAHAI), shared her findings from a contextual study of work automation in the Quality Testing and Assurance space. With IT testing as predictable and banal as it can be, it is a sitting target for automation. She discovered that testers needed to upskill themselves constantly or reskill in the form of developers. She however argued that there were certain limits to automation from an ethical standpoint as well as in cases where creativity was needed. According to her, the way forward is to create a stronger feedback between development and testing and move from automation to creation.

The Tech Behind Machine Learning

To explain how algorithms work today, Dr. Prasad Krishnan from Signal Processing and Communications Research Centre (SPCRC) went back into time to Claude Shannon, popularly known as the "father of Information Theory". He took us through a video where Shannon created the first mechanical mouse and trained it to navigate through a maze. Dr. Santosh Nannuru continued by explaining how Mathematical concepts existed in the Signal Processing and Mathematical domains for a long time. But with the availability of data, it is now used in AI. Such algorithms are used in signal processing for echo-cancellation in mobile phones and other devices.

Blockchain

In a lively presentation bordering on the philosophical, Dr. K. Srinathan from Centre for Security, Theory and Algorithmic Research (CSTAR), spoke at length on the attributes of truth vs. those of machines concluding that they are diametrically opposite in nature. Deriving 3 famous fields such as Distributed Computing, Cryptography, and Game Theory, he remarked that these fields will lead to pseudo-truth. Without getting into the nitty-gritties of the specifics, he gave an overview of how disruptive cryptocurrency and bitcoin technology is, while steering clear of controversial statements about the Govt's stand of criminalizing cryptocurrency.

III. RESULTS

Showcasing Startups

If IIIT-H is here, can startups be far behind? Prakash Yalla, Head of the Technology Transfer Office anchored this segment by having 6 emerging startups demo their respective products. Two of the startups had solutions with far-

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reaching implications for the immediate audience – Digitee, with an array of solutions for media such as an authentication solution, a tech summarization solution and a content cross-purposing solution. Mashinga, a speech-to-text solution highlighted its superiority in being able to detect Indian English more accurately with its data-driven models and demonstrated its use in a variety of domains including healthcare. Subtl showcased a complex automated question and answer system which uses a combination of natural language processing, information retrieval, document extraction and summarization. It has a multitude of use cases across industries such as the banking and financial sector, education, healthcare and defence. DreamVu, a computational optics company demonstrated its omni-stereo camera with 360 degree views that aims to disrupt the human vision and computer vision markets. Using AI in the rehabilitation sphere is Soujhe Innovative Healthcare Devices. They've come out with smart, wearable solutions to assist patients suffering from stroke, spinal cord injuries, brain injury, frozen shoulder and so on. For the sports enthusiasts, Match day has a solution that works on uploaded sports videos, segmenting them and generating reports that can assist in player tracking and analysis. These startups reveal the culture prevalent at IIIT-H: some of them are the outcome of collaborative research in the labs with the students and professor deciding to start up, others are the result of IIIT-H's research attracting interest from existing entrepreneurs, and still others have taken off from an internship at Product Labs.

Round table of Thoughts on Future of Journalism

As a former journalist and current Editor-in-Chief of Veooz Labs, an algorithmic platform that curates a mix of stories to subscribers, Chitti Pantulu ably moderated the last segment. Incidentally, Veooz was also the first startup that was born out of IIIT-H. Participants were invited to discuss what AI portends especially for journalists. Chitti began by listing 3 macro-trends for Indian media in particular: 1) The bottom lines of newsrooms are under pressure and they are rationalizing manpower and trying to cut costs. 2) The demographics in the media industry is changing: Youngsters are moving into more lucrative career options such as PR and so on rather than journalism. 3) Disintermediation of information dissemination: With the virality of social media, print publications are getting sidelined. With MNCs setting up newsrooms, the relevance of media as we know it, is under a question mark. Where once the TV dictated the content of the newspaper, today it is Twitter or FB.

Speaking for himself, Chitti said that the news editors job has almost become redundant with algorithms processing twice or thrice the amount of information. In fact, segmentation of content is also done automatically. Large publishing houses in India are yet to hop onto the AI bandwagon and he said that we are at least 5 years away from AI replacing humans in journalistic tasks. Aniket remarked that AI was envisioned to do away with repetitive and mundane tasks. And yet we see jobs in the creative sphere like those of the news editors getting automated. Similarly we see AI in jobs requiring precision and high skills such as those of surgeons. The discussion centred around how much an algorithm can really understand. It will likely push one into an echo-chamber and for news values and creativity, we still need to go back to traditional journalists. The question of monetization in the digital platforms was brought up by a participant. The truth is that none of the Indian digital platforms are making money because no reader is willing to pay for such content unless it is very niche.

The upside to AI implementation is that it typically needs more manpower than what one thinks. Some journalists pointed out the redundancy of having a stock reporter to report on the highs and lows of the market each day. An automated process in such cases as well as in those related to companies' earnings statements will benefit editors. For cases of investigative journalism where years of data needs to be crunched to see trends and make accurate

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analysis, again an automated process will help. It was widely acknowledged across the table that content is not king anymore but that SEO (search engine optimization) is king! Quoting Steve Jobs' "The user doesn't know what he or she wants", Chitti drew a parallel to the reader who skims through news articles. An automated reportage is leading publishing houses to push what interests readers and not necessarily what is in the interest of the public. AI in the newsrooms (in India) will take a while but there is immense potential for automatic cataloging, selection and automatic captioning of pictures for associated articles. To conclude, Chitti said that as a journalist, one needs to retrain and acquire new skill sets, such as Python or a scripting language. This will enable the writer to process data to write out stories.

New Delhi: The initial wave of Artificial Intelligence has started to create ripples in the newsroom and the question that arises here is whether the media jobs are now at stake or not.

The presence of AI has been reflecting in chatbots, automated reporting systems and machine learning techniques which are sifting through massive data sets to write initial news reports.

For those who still believe that AI and automation will not hit jobs in the media industry, just consider the kind of investments that media houses are now making in AI for the newsroom. Clearly, the next five to ten years would be decisive.

Google has provided British news agency Press Association \$805,000 to build software that will gather, automate and write nearly 30,000 local stories a month.

Dubbed as "Radar" (Reporters And Data And Robots), the software will "automate local reporting with large public databases from government agencies or local law enforcement".

South Korea's Yonhap news agency has introduced an automated reporting system "Soccerbot" to produce news on football games.

Associated Press and Thomson Reuters are using machine learning algorithms to write stories and The New York Times plans to automate its comment moderation.

News organizations have started to adopt Artificial Intelligence tools to change the way how news is generated, produced, published and shared. As newsrooms start adopting AI technologies, journalists and media students need to develop new sets of skills to effectively use these evolving technologies and tools. This global summit brings together world's best thought leaders and Journalism educators who firmly believe that AI technologies are transforming journalism for good and set to provide great tools for journalism. The summit shall provide good insight for students to understand the future course of Journalism and equip them to get trained in new technologies impacting the media industry.

The 3 day virtual summit on 5th, 12th and 19th November is being organized by the Department of Media Studies and IQAC of Christ Nagar College Trivandrum, India

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IV. CONCLUSIONS

This time last year, we announced a package of investments to support India's news ecosystem, including launching Google News Showcase - our new product experience for readers and licensing program for news publishers.

One year on, we continue to learn and evolve the program, work with more publishers and strengthen our partnership with the news industry through training and tools designed to equip newsrooms to leverage the digital opportunity.

Since Google News Showcase launched in India last year, we've signed deals with more than 80 partners representing more than 130 publications, including national, regional and local news organizations like Times Group, The Hindu Group, HT Digital Streams Ltd, Indian Express Group, ABP LIVE, India TV, NDTV, Zee News, Amar Ujala, Deccan Herald, Punjab Kesari, The Telegraph India, IANS and ANI. We continue to work towards adding more partners.

Additionally, Google News Showcase expanded to more languages over the past year and now supports a total of 8 languages including Kannada, Marathi, Tamil, Telugu, Malayalam and Bengali - along with English and Hindi.

We've also continued our work providing training and resources for news businesses and journalists, for example GNI Startups Lab, GNI Newsroom Leadership Program and GNI Advertising Lab.

GNI Startups Labs

We recently concluded the GNI Startups Labs program in India, with 10 news media startups participating in the 4-month program designed to support and contribute to the acceleration of the news ecosystem in the digital environment. The program began in December and participating news startups had access to mentorship, training and workshops on topics such as audience-centricity, digital products, business models, marketing, strategy, community building and fundraising.

One of the participants, Karma Paljor, a journalist who co-founded East Mojo said: "The Startups Lab came at a time when we were working on ways to level up from our current position. There were many questions on our quantity vs quality, expansion to other states, new content buckets and most importantly monetisation. Through the Lab, we were able to test new content products and also launched our support model. We would eventually want to grow to a subscription model."

Another participant, Bhanupriya Rao from BehanBox said: "The biggest win for us was the shift in our own mindsets from a journalist thinking to a product and business thinking. This thinking is helping all our future innovation and taking our journalism to bigger audiences."

We will continue to work with news startups to support their needs, with more programs to come later this year.

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GNI Advertising Lab

We've also just completed the GNI Advertising Lab, a six-month effort launched in partnership with Dataleads and Mediology (Readwhere) to support more than 200 small and medium news organizations in their digital advertising journey.

The goal of the GNI Advertising Lab is to help publishers increase their advertising revenue with product training and technical implementation.

Saj Kurian, Managing Director of Southlive, a Malayalam-language news portal said 'Southlive is very thankful for this opportunity given to us by GNI. The Ad Lab program has been truly insightful for our team. The support and guidance provided to us about revenue making and boosting the overall performance of our website has been tremendously helpful. Upon completion of the program, Southlive has been able to make an upward shift in its overall performance. Before we joined this program, we were at a position where we could not generate ad revenue. However, with the positive guidance from your team, we are currently able to generate a Google Ad revenue of approximately \$1500/month. In addition to the same, the workshop has empowered the whole team of Southlive. We are now able to put forward our needs clearly to our developers which is crucial to our performance enhancement.'

Lavanika Vemula, Digital Manager at Mid-Day.com said 'We had an excellent experience with GNI, very knowledgeable and good learning. It is important for a partner to be accessible and flexible to have measurable results, which GNI could be for us. There was an excellent collaboration with numerous suggestions on increasing advertising revenue. We can easily say that was the most valuable aspect of the collaboration.'

GNI Newsroom Leadership Program in collaboration with Columbia School of Journalism

We called for applications late last year and the program kicked off with its first India-only cohort, comprising fellows from a variety of newsrooms, both legacy and digital native.

The program aims to strengthen the leadership skills and decision-making capacity of newsroom leaders working and living in India, with a particular focus on applied technology, audience understanding, design thinking, data applications, emerging business models and editorial innovation.

The projects that the fellows have chosen to work on focus on topics like citizen journalism, managing remote workforce, environment and climate change reporting, artificial intelligence, podcasting and subscriber growth among others.

"The most unique part of the program is the mentoring support of a dedicated expert coach who is helping us with a project of our choice. This is a very rare opportunity. Through this program, I am not only strengthening my abilities as a newsroom leader, but also helping my newsroom keep up with the ever changing digital world." said Pratyush Ranjan, Executive Editor at Jagran New Media, who is working on using Artificial Intelligence to strengthen quality journalism.

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“I loved the design thinking phase. The first week of virtual residency was intense, in a good way, and pushed us out of our comfort zone. The program faculty, coaches and learning material that we have been given access to are stellar. I am also most excited about this unique opportunity to share and collaborate with colleagues from other newsrooms, and build a network that would go beyond the classroom. We are learning from each other, helping each other and are truly rooting for each. This for me is inspiring! I am glad I got the opportunity to find my tribe,” said Aditi Tondon, Editor at Mongabay India who is working on a project to tackle climate change misinformation.

Expanded support for newsrooms to combat misinformation

We are continuing our work to strengthen digital skills in newsrooms and journalism schools across India. Last year we announced that, with increased support from the News Lab, we’ll train 50,000 journalists and journalism students, with a focus on verification and tools to combat misinformation online. We’ve also expanded programs to connect Indian journalists and fact-checkers, building on our existing work with the GNI India Training Network in partnership with DataLeads. To date, it has trained over 39,000 Indian journalists in 10 languages, touching more than 1,200 news organizations and more than 1100 universities. We also supported Ekta Coalition, a consortium of six independent fact-checking groups and Meedan, a global technology non-profit, to run a media literacy and fact-checking training and fellowship for journalism students.

We are proud of the developments we’ve seen over the past 12 months and continue to work with a diverse mix of publishers across India to help them to build a sustainable, independent and diverse news ecosystem

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