AUTHORING JUSTICE

Capstone Project

Saugat Pokharel

Global Campus of Human Rights

Co-funded by the European Union

AI Anxiety: Fear of Being Left Behind

Saugat Pokharel

As the excitement for the fourth industrial revolution looms, anxiety grips me. With AI being positioned as the technology that will reshape the world, I can't help but question: Will some or all of our jobs disappear? Is Nepal ready, or will we be left behind? And is anyone doing something about this?

The questions are relevant as the Oxford Insight's Government and AI Readiness Index 2023[1] paints a stark picture for Nepal. It ranks Nepal 150th out of 193 countries, far behind the top three: the USA, Singapore, and the UK. Other South Asian nations fare similarly poorly: Afghanistan (186), Bangladesh (82), Bhutan (114), Maldives (146), Pakistan (92), and Sri Lanka (95), with rising superpower India (40) as an exception. The report shows a similar position for low-income developing countries across the globe. It makes it clear that Nepal is not ready, but will it be left behind?

Darshan Parajuli, a young Nepali entrepreneur, personifies the same anxiety. While studying Development Studies in Nepal and Journalism at the Asian College of Journalism, Darshan witnessed firsthand the transformative power of Generative AI.

However, when he came back to Nepal after his education, he realized that most Nepalese didn't share the same enthusiasm. More importantly, most Nepalese were not aware of AI, and those who were aware were reluctant to adopt it. With the problem statement in mind, Darshan co-founded TeachMeAI with Sunil Chaulagain and Devadas Rajaram. Their venture offers workshops,

[1] Emma Hankins et. al. Government AI Readiness Index 2023 (Oxford Insights, Dec. 20, 2023), https://oxfordinsights.com/ai-readiness/ai-readiness-index/ (accessed July 10, 2024).

training, and consulting services to institutions, students, and businesses, aiming to bridge the AI knowledge gap. Darshan says, “It’s my mission to make AI easy, accessible and exciting for everyone.”

Within a sea of raised hands, you can see a passionate Darshan with a mic on, and in the background, a digital banner reading “Responsible AI for Youth.” In the audience, young students and graduates attentively listen to Darshan speak. He conducts several of these workshops aiming to educate the masses about AI.

In another instance, you see him standing with a mic in hand and a brown notebook, reading out facts regarding Nepal’s national policies and asking policymakers, “When will Nepal make its own National Policy on AI?”. Advocacy from youth like him has resulted in Nepal releasing its concept paper on June 30, 2024.

Darshan sees AI as having enormous potential to impact students and views it as a great equalizer. Having faith in the younger generation and considering that the median age of Nepal is 25 years old, Darshan is optimistic about the future. He believes that with awareness and upskilling, they would not only be saved from falling behind but “100% possible” to compete in the global market.

However, in the backdrop of Darshan’s optimism for the future, the present is but bleak. While the Asia-Pacific region leads in AI adoption, Nepal clearly lags behind. There are no exact studies, but experts estimate that only 5% of Nepal’s population uses AI regularly,[2] and those figures seem accurate considering Nepal’s economic realities. With a per-capita income of $1,456, spending $240 (the cost of ChatGPT Pro) annually on AI seems inaccessible.

[2] Anup Ojha, The Promises and Pitfalls of ChatGPT in Nepal, The Kathmandu Post (Jan. 31, 2023), https://kathmandupost.com/science-technology/2023/01/31/the-promises-and-pitfalls-of-chatgpt-in-nepal (accessed July 10, 2024).

For developing countries, the true potential of AI lies not in mass-consumer products (like ChatGPT) but in leveraging data to solve local problems. A study by Saurabh Mishra et al.[3] suggests that nations have diverse needs, necessitating AI specialization.

It's believed that with specialization, AI can help developing nations enhance traditional industries and uncover new opportunities, allowing them to stay competitive in the rapidly expanding and evolving field of AI. The study highlighted an example: the use of AI in Agro-Tech to boost the competitiveness of India's agricultural sector (a large portion of India's GDP). While the study focused on just four countries, it underscores the importance of national or sub-national level investment in AI specializations, which is needed if a nation wants to be competitive.

Prabhat Khadka, a Nepalese software engineer with a master's degree from the University of Greenwich, exemplifies this localized approach. Having studied natural language processing and AI in Nepal during his Bachelor's at Kathmandu University in 2006, Prabhat is an AI enthusiast. Running a tech company called ktmbees in Nepal, Prabhat was approached by Sampanna Tiwari, a law student with a social problem, hoping for a technological solution. Sampanna recognized the gap in legal literacy in Nepal and proposed developing Juriease, a legal chatbot that could generate answers to legal questions using AI.

However, in developing Juriease, the team is encountering several challenges, particularly among them is the processing of Nepalese legal texts. Legal texts in Nepal use the Devanagari script, which is written in the Nepali language. Juriease currently is built upon base LLM models like Gemini and ChatGPT, which support Nepali, but their capabilities are limited. Prabhat notes that the results often miss linguistic nuances, producing odd

[3] Mishra, S. et al. AI specialization for pathways of economic diversification. Sci Rep 13, 19475 (2023). https://doi.org/10.1038/s41598-023-45723-x

translations and sometimes even producing Hindi as a response. This is because the models are mostly trained in Hindi for the large consumer base of India, and these companies have limited incentive to prioritize or focus on the smaller consumer base like Nepal.

These issues highlight the need for a native LLM model trained specifically in Nepali. Prabhat, too, recognizes that developing such a model will be crucial for Juriease, viewing their current product as but a proof of concept.

However, the development of a native LLM is not easy; Prabhat acknowledged that extensive investment would be required for such a model. “Access to AI infrastructure is not a problem,” Prabhat notes to me. “The issue is access to investment.”

This is because creating powerful language models like ChatGPT demands millions of dollars of investment in computing power. A few global companies like Nvidia primarily provide the infrastructure for this computing. Providers for such infrastructure are limited and charge a premium for access, and big tech is willing to pay the price. However, for entrepreneurs in most developing nations, the cost can be an insurmountable burden.

This has significant implications for the future of economic prosperity as even when developing nations are successful in AI Specialization building native solutions, the end beneficiaries (those receiving payment for using the computing infrastructure) are limited to big-tech giants in the rich nations.

Additionally, AI research is generally dominated by a few actors, namely large technology firms, well-funded unicorn startups, and elite universities. For instance, 100% of the world’s supercomputers are located in only 30 nations, leaving 85% of the

world's 204 countries[4] without the necessary domestic AI infrastructure to develop or compete in this sector. While with enough investment, access to AI Infrastructure is currently not an issue, it might not always be true. For example, on April 4, 2024, the US significantly restricted China's access to advanced AI chips, citing national security reasons.[5]

* * *

AI's disruptive potential extends beyond the tech industry, affecting jobs across multiple sectors. However, experts say this is natural. A study revealed that more than 60 per cent of employment in the United States in 2018 was in job titles that didn't exist in 1940.[6] Thus, AI matures, and while jobs in other sectors are reduced, the scope of AI-related jobs is expected to increase.

An analysis of LinkedIn data from Latin American countries suggested that half of the 20 fastest-growing skills (including AI) were directly linked to technological advancements. Similarly, in India, demand for AI-related skills has grown exponentially since 2016, with these roles offering substantially higher wages than other white-collar service jobs.[7] Innovative technologies often create new job opportunities. The question is what the new jobs will look like and whether the workforce in developing nations can upskill to meet the requirements of these new AI-related jobs.

[4] Ibid.
[5] Bureau of Industry and Security, Department of Commerce, Implementation of Additional Export Controls: Certain Advanced Computing Items; Supercomputer and Semiconductor End Use; Updates and Corrections; and Export Controls on Semiconductor Manufacturing Items; Corrections and Clarifications, 15 C.F.R. §§ 732, 734, 736, 740, 742, 744, 746, 748, 758, 770, 772, & 774 (2024) (interim final rule).
[6] Autor, David, Caroline Chin, Anna M. Salomons, and Bryan Seegmiller. 2022. New Frontiers: The Origins and Content of New Work, 1940–2018. Technical Report. Cambridge, MA: National Bureau of Economic Research.
[7] Wall, Sheridan, and Hike Schellmann. 2021. "LinkIn's Job-Matching AI Was Biased. The Company's Solution? More AI." MIT Technology Review, June 23, 2021.

With an increase in AI capability, the nature of jobs created will change. For instance, AI image recognition requires extensive human effort in data labelling, with 1 hour of autonomous driving video potentially needing 800 hours of human labour. This has created a new and rapidly growing data labelling market, estimated at $1-3 billion and expected to see double-digit growth for the rest of the decade.

However, these new jobs often exacerbate inequality. They primarily benefit highly skilled labour and capital owners. Trends show rising wage premiums for high-skilled workers, while low and middle-skilled workers face sluggish wage growth. AI is expected to intensify these disparities. It is evident that while an AI engineer at the top would be paid a premium, jobs like data labelling will require minimal skills and thus be paid less. This reduction in pay and jobs can widen the income gap, which affects not just individuals within countries but also between nations.

AI favours scale and early adoption, potentially deepening the divide between higher and lower-income countries in terms of both income and technological complexity. The first-mover advantage in AI is significant, with Chinese and US companies currently dominating the field. The massive funding required for the AI arms race makes it challenging for competing products to rival tech giants.

This raises clear concerns that AI-driven productivity gains will likely concentrate in rich countries where these technologies are first created and adopted. There's a risk that a few big-tech companies in wealthy nations will produce globally disruptive technology, potentially making these countries the next superpowers while leaving the rest of the world behind.

But all is not lost.

Bishal Kharal, a young engineer from Nepal, is working remotely as an AI Engineer at Fagoon AI. Currently, Bishal is working on highly sought-after sectors like LLMs and diffusion models, which qualifies him as a highly-skilled tech employee. He exemplifies the participation of individuals from developing countries in the AI revolution. But maybe even more interestingly, he is a self-taught engineer.

Having finished Grade 12 at Burnhardt College, Bishal already had experience working on tech-projects as a back-end developer. He used his background experience and his interest in AI to land his internship as a Data Scientist in Reduct Nepal, which started his career in AI.

When asked if such upskilling was possible for other students like him, Bishal notes, “With enough hard work and dedication, one can learn the necessary skills regarding AI.” As he points out, “The mathematics course in Grade 12 in Nepal is advanced and really helped in such a transition.”

However, Bishal also pointed out that “Many of the terms and technology relating to AI were scientific and technical in nature, making self-study difficult.” This was especially a problem as Bishal entered the AI space at a young age when mentorship and guidance were key to proper development. Recognizing this gap and seeking a community of like-minded enthusiasts, Bishal co-founded the Data Research Council for Students (DRCFS). DRCFS is a student-led, research-based, non-government organization working on data-intensive hands-on practice for students at all levels.

He said that while the interest in AI has increased significantly in recent years, the utilization of AI for productive work is still in development, for localized development technologies like native LLMs trained in the Nepali Language would be required, which

needed extensive work and collective effort.

When asked about the potential of AI to impact jobs, he stated that non-creative work will be reduced significantly, and without a global policy for AI, inequalities can be expected to increase.

* * *

Ultimately, these are massive challenges that risk undoing years of efforts put into reducing income inequality and narrowing the gap between developing and developed nations. They can't be ignored. There's an urgent need to democratize AI and address the digital divide. But the stories of Darshan Parajuli, Prabhat Khadka and Bishal Kharal offer optimism about Nepal and other developing nations' participation in AI.

Studies emphasize the necessity for specialized investment in AI infrastructure, local AI ecosystems, skill development, sectoral strategies, and AI regulations to keep nations competitive. Developing nations can't do this alone; sharing of investment and technology along with global support is essential to ensure developing nations also get to participate in this Fourth Industrial Revolution.

This year, the Global Campus of Human Rights debuted an exciting new online course called "Authoring Justice." The course focuses on how to write powerful narrative nonfiction works about issues of human rights and social justice – using storytelling to touch the hearts and minds of readers, affecting change around the world. This first iteration included lessons from award-winning authors and human rights leaders, including Professor Andrew Leon Hanna (the main lecturer), Justice Albie Sachs, Casey Gerald, Kao Kalia Yang, Jemma Neville, and Joel Rickett.

The inaugural cohort of students are human rights advocates, lawyers, professors, and researchers from across the globe with a wide range of focus areas – from peace mediation in Ukraine to equitable access to technology in Nepal and beyond. The previous pages feature one selected example of the students' "Capstone Projects," which were designed to be either standalone long-form works or components of books they are now beginning to write.

E-Learning Department

Global Campus of Human Rights
Monastery of San Nicolò
Riviera San Nicolò, 26
I-30126 Venice Lido, VE

P +39 041 2720911
F +39 041 2720914
e-learning@gchumanrights.org
www.gchumanrights.org