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Intel Editorial: Unlocking the Potential of Generative AI

Intel's goal is to support all artificial intelligence models, including generative AI, with responsible perspectives and principles.

SANTA CLARA, Calif.--(BUSINESS WIRE)-- *The following is an opinion editorial by Ilke Demir of Intel Corporation:*

Generative artificial intelligence (AI) describes the algorithms used to create new data that can resemble human-generated content, including audio, code, images, text, simulations and videos. This technology is trained with existing content and data, creating the potential for applications like natural language processing, computer vision, metaverse and speech synthesis.

Generative AI is not new. It's the tech that created voice assistants, infinitely evolving games, and chatbots.

Recently, several powerful AI tools, such as ChatGPT and DALL·E 2, have been used as generative AI, enabling people to build apps on them, and to experiment and post the results online. You may have seen one in action when social profiles were flooded with historically inspired photos from the MyHeritage AI Time Machine, which uses AI to generate hypothetical pictures of a person's appearance if they lived in different eras. While some have shared concerns about the potential of generative AI to threaten jobs, there is a greater opportunity to responsibly use generative AI to improve people's efficiency and creativity.

Intel's Trusted Media team works to build generative AI applications with humans in mind. The team strives to create AI that improves people's lives, limits harm and builds tools to make other technologies more natural. And it does it all with responsibility at each step of the process, not just the end.

Intel's Approach to Generative AI

In the past few years, generative AI has become more powerful – and therefore more capable of doing problematic things in a more convincing and realistic manner.

For example, generative models for deepfakes aim to impersonate people. We defend against this in two ways. The first is with our deepfake detection algorithms integrated into our real-time platform. FakeCatcher, the core of the system, can detect fake videos with a 96% accuracy rate, enabling users to distinguish between real and fake content in real time. The second is through our responsible generators, one of which makes human puzzles. As opposed to creating images by training on real people's faces, this generator mixes and matches regions (nose of person A, mouth of person B, eyes of person C, etc.) to create an entirely new face that does not already exist in a data set.

We believe that AI should not only prevent harm but also enhance lives. To fulfill this vision, the team's speech synthesis project aims to enable people who have lost their voices to talk again. This technology is used in Intel's I Will Always Be Me digital storybook project in partnership with Dell Technologies, Rolls-Royce and the Motor Neuron Disease (MND) Association. The interactive website allows anyone diagnosed with MND or any disease expected to affect their speaking ability to record their voice to be used on an assistive speech device.

Finally, the Trusted Media research team is also working on using generative AI to make 3D experiences more realistic. For example, Intel's CARLA is an open source urban driving simulator developed to support the development, training and validation of autonomous driving systems. Using generative AI, the scenes surrounding the driver would look more realistic and natural. Intel's generative AI approaches also simplify 3D creation and rendering workflows, saving hours for 3D artists and making games run much more quickly.

The Role of Responsible AI

We understand that we cannot trust generative AI results without understanding the process by which these systems work. Intel has long recognized the importance of the ethical and societal implications associated with the deployment of such technological advancements. This is especially true for AI applications as we remain committed to leveraging the best methods, principles and tools to ensure responsible practices in every step of our product cycles. As generative AI evolves, it is critical that humans remain at the center of this work. Responsible AI begins with the design and development of systems, not with cleaning up after they are deployed.

It's important to train AI systems so they do not generate harmful material. This is where our Responsible AI framework is important. We improve safety and security by conducting rigorous, multidisciplinary review processes throughout the development lifecycle. This includes establishing diverse development teams to reduce biases, developing AI models that follow ethical principles, extensively evaluating our results from both technical and human perspectives and collaborating with industry partners to mitigate potentially harmful uses of AI.

This framework ensures we are finding ways to positively implement this technology and keep people in control of how they can best leverage AI. A multidisciplinary approach allows us to deepen our knowledge and focus to tap into opportunities in the thriving AI sector while working within established ethical, moral and privacy parameters.

What's Next

Our goal is to support all AI models, including generative AI, with responsible perspectives and principles. Ensuring a human perspective is present at all phases of development allows this technology to be more applicable, collaborative and less harmful.

I look forward to seeing how the generative AI momentum grows, and to partnering closely with my team at Intel and across the industry to ensure its responsible advancement.

Ilke Demir is a senior staff research scientist in Intel Labs.

About Intel

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