


Industry Insight

# Painting the Future: How AI is Aiding Human Creativity

In this article Christy Michalak, the Director of Advanced Manufacturing Development at NGen Canada, explores the pervasiveness of AI in the manufacturing industry. Drawing on the role of AI in the creative process, using the example of an AI-powered app to improve a painting. Christy finds that AI can provide valuable input, but it cannot replicate the human touch and creativity that is essential to art and manufacturing. She emphasizes the need to use AI as a tool to enhance human creativity and ideation, rather than replace it, to stay ahead of the competition.

 Next Generation  
Manufacturing Canada



# The Growth of AI

It's hard to live and breathe in this world today without pondering both the threat and the opportunity of AI. Recently having traveled to Hannover Messe (the world's largest trade show for manufacturing), we were struck by the pervasiveness of AI. No more are we going to "the AI pavilion" or looking at new and novel use cases – today AI is everywhere. And we're right to take a moment to ponder the impacts.

## Current Tools

At NGen for example, we've taken a look at Chat GPT and how it could help our business. Currently we're looking into the emerging hydrogen sector in Alberta, so as a test example asked Chat GPT to tell us what opportunities are arising. It gave us very generic results that you can read yourself through google, or through the province's strategic plan for hydrogen:

There are many opportunities for Alberta manufacturers to pivot into the hydrogen market. One key opportunity is to start producing different types of equipment and technology that are specifically designed to support the production, storage, and transportation of hydrogen. For example, manufacturers could start building hydrogen fuel cells, storage tanks, and other components that are needed for hydrogen-powered vehicles and other applications. Another opportunity is to embrace renewable energy sources, such as wind and solar power, to help produce hydrogen more efficiently and sustainably. With a strong foundation in manufacturing and a growing focus on clean energy solutions, Alberta is poised to make a big impact in the hydrogen market.



## A Targeted Data Base

However, when Chat GPT's knowledge is augmented with NGen's 6000-member database then you get something very special. In that case, it returned two companies in Alberta who are perfectly situated to pivot and become a significant part of that supply chain:

There are several opportunities for Alberta manufacturers to pivot into the hydrogen market. Two Canadian companies that come to mind are Ionomr Innovations and FuelCell Energy.

Ionomr Innovations develops advanced ion-exchange membranes and polymers that enable lower-cost hydrogen production and cost-effective and more durable hydrogen fuel cells. Their technologies also allow for synthetic fuel production from the capture and processing of atmospheric carbon dioxide and other CO<sub>2</sub> sources, as well as effective chemical recovery in heavy industry.

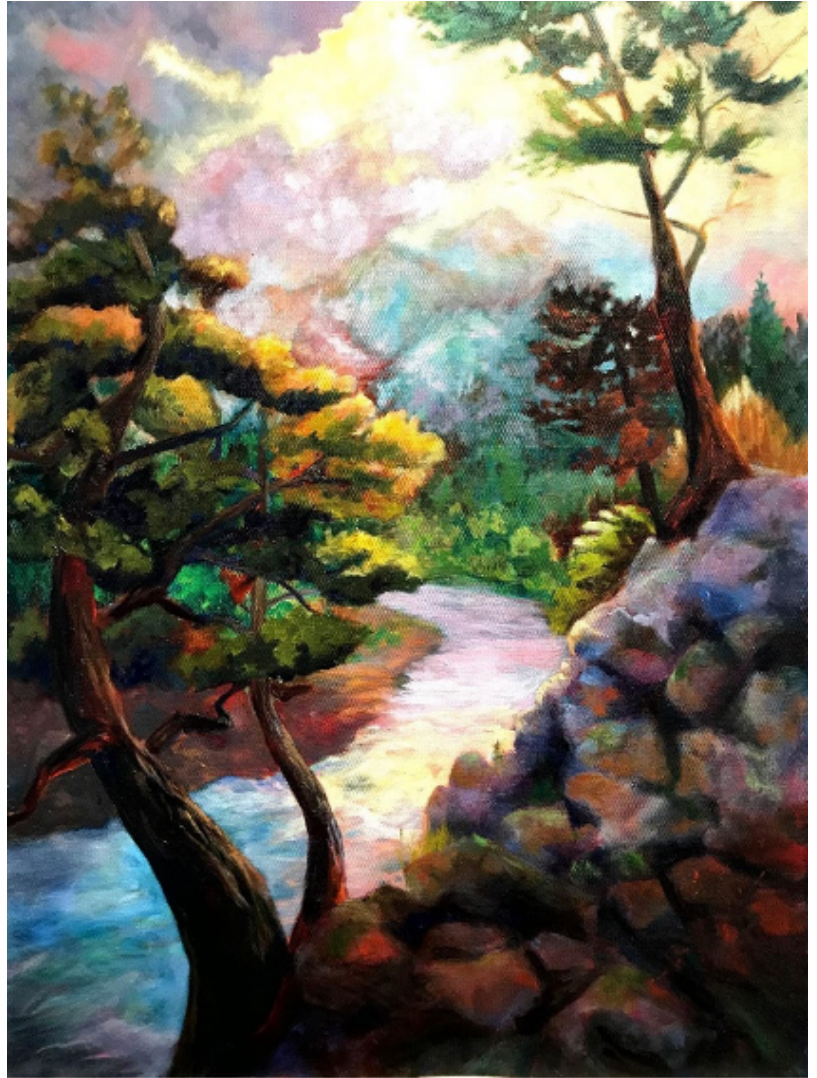
FuelCell Energy, on the other hand, offers ultra-clean platforms that help decarbonize heavy industry and improve site resilience, produce hydrogen to fuel zero-emission vehicles, provide reliable on-site heat and power solutions that can cut costs and reduce emissions, and convert biogas into ultra-clean heat and power.

Both companies offer innovative solutions that can help Alberta manufacturers pivot into the hydrogen market. However, it's important to compare and evaluate different companies and solutions to determine which one is the best fit for your specific needs and goals.

These sorts of insights are a part of NGen's value proposition for the Canadian manufacturing sector. Now that AI can do it for us, where do we go from here? Is there opportunity to transcend what we were doing before, using this new tool?

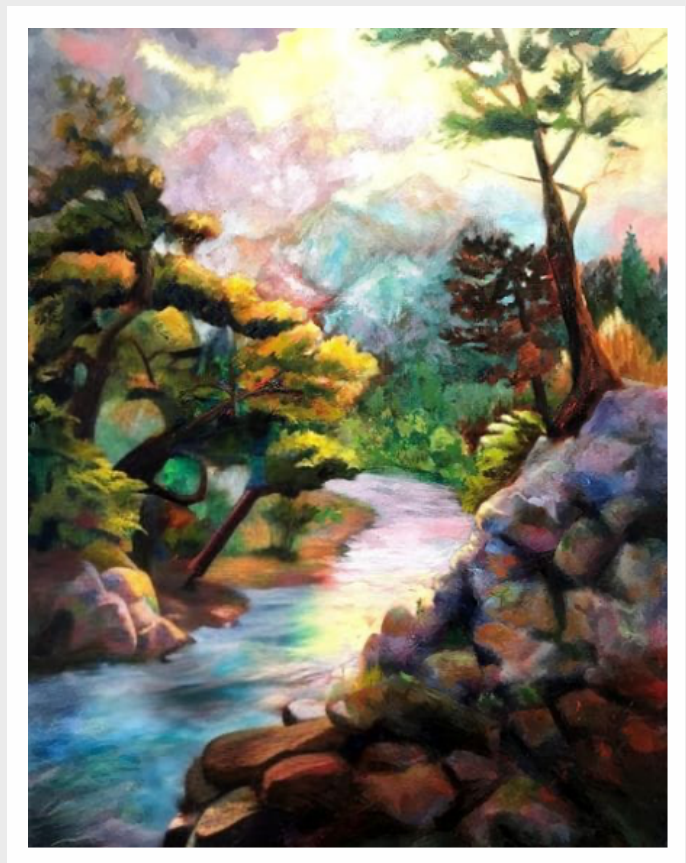
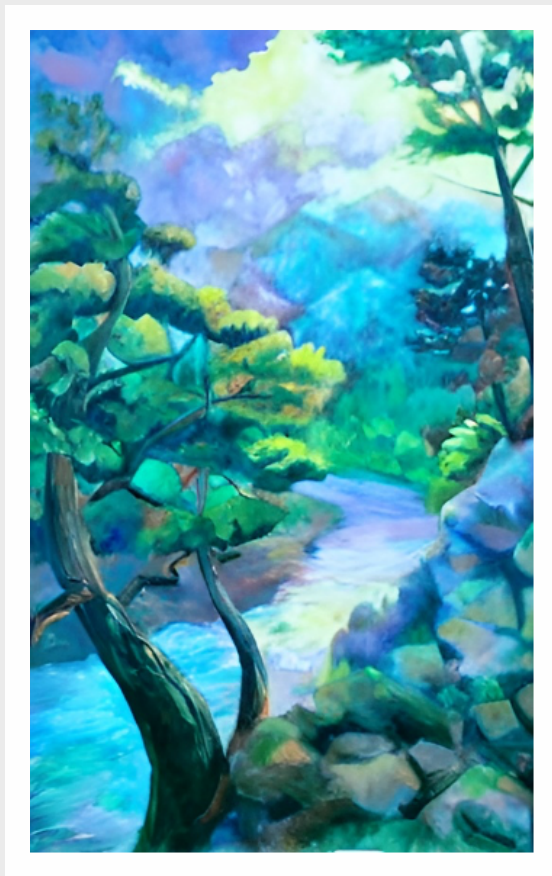
## Is AI a Tool for Creativity?

To investigate, let's cut out the technical analysis and look at the purely creative synthesis that humans are able to do. Can AI already surpass us in creative efforts? Or is it a tool to support creativity? In my off hours, I enjoy painting the Canadian landscape. I was curious to see what AI could do to help with my work. This is a painting I've had on the easel for quite a while, looking for changes that need to be made to get it "just right". Here's the original painting:



## AI Generated Art

Running the image through a free AI image based app (Nightcafe) created several ideas for improvements:



Whether these are improvements or not, I'll leave to you, the reader. But going back to the original question: has AI solved the puzzle?



## AI as a Tool

Not exactly. Painting is so much more than a 2D image. People connect with the texture on the canvas, the way it captures the light, and the way that it leaves the mark of a human touch. We're a long way away from AI and canvas printing being able to replicate that. That leaves artists with a long time to get even further ahead – perhaps accelerated by the use of these tools for critical input, but coupled with even deeper introspection and a challenge to further develop our skills. In the case of this specific canvas, I will likely incorporate some of the ideas presented into the final work but still fully own the outcome as a piece from my own imagination.

So how do we transition this learning into a manufacturing context?

AI is a tool. We can and should use it to shortcut or circumvent some of the long thinking, ideating, and analysis that we do to stay ahead of our competition.

If we take that time and use it for blind execution we won't get ahead. But taking that freed up time and using it to think, to ideate, and to connect with others – that can keep us ahead for many years to come.

## Meet the Artist

Christy Michalak is NGen Canada's Director of Manufacturing Development Programs, where she has the opportunity to bring together some of the brightest minds and the best technology from across Canada to create solutions for today's most pressing issues.

Christy started oil painting when she was five, and today hikes out into the wilderness to paint the Canadian landscape. As she is involved in both AI and the arts community, she is fascinated about the development of both industries and their intersection.

