

Podcast Name: *ACM ByteCast*

Episode: Pat Pataranutaporn - Episode 35

Welcome to the *ACM ByteCast* podcast, a series from the Association for Computing Machinery! The podcast features conversations with researchers, practitioners, and innovators at the intersection of computing research and practice about their experiences, lessons learned, and visions for the future of computing. In this episode, host Bruke Kifle interviews guest Pat Pataranutaporn, a technologist and researcher at MIT. Here, he explores the intersection of synthetic virtual humans and synthetic biology, specifically at the interface between biological and digital systems. He is currently a PhD candidate at the Fluid Interfaces Group at the MIT Media Lab and a KPTG Fellow. He believes in bringing crazy ideas and moonshot thinking to create future innovation.

To begin, Pat shares about his background and the experiences which led him to computing and his chosen field of study today. Growing up, his source of inspiration into the science realm was his fascination with dinosaurs. For him, dinosaurs have always been a representation of both the past and the future, reminding us that there is always room for technological innovation. What he most appreciates about doing research at the MIT Media Lab is how much they are able to imagine the future, rather than focus on solving immediate problems. Pat defines his area of research as the seamless intersection between humans and machines. The idea behind fluid interfaces is that they are always changing.

The conversation then shifts to discuss Pat's involvement in various projects which have used humans and machines combined to improve learning, wellbeing, decision making and more. He begins by unpacking the idea of human-AI co-reasoning which his group has been exploring. This project aimed to answer the question of how we can use AI to help us become more critical in the way we process information and teach us critical thinking. They determined that the AI would work best to help people reason when it can explain its decision or suggestion. Thus, explainability is very important for human-AI co-reasoning.

One area Pat is particularly excited about right now is the idea of AI for educational purposes. He looks forward to a new education paradigm in which children, with the power of technology, can do things that even teachers today can't imagine. With the power of AI, young children may one day be accomplishing things MIT graduates are doing today. Looking towards a similar future of wearable devices, Pat believes the social acceptance of wearable devices will begin to shift over time to become more commonplace. For example, many wearables are now able to perform the functions which used to only be able to be done at hospitals.

MIT's Media Lab tends to focus not just on solutions to current problems, but largely about identifying new problems which have not yet been clearly voiced. It is their job to be less practical now, but more impactful in the future. The projects coming out of the MIT Media Lab are at the forefront of technology, especially their recent space exploration initiative. With such a wide range of projects and research, Bruke asks Pat to reveal the impact he hopes his current research may one day have on the future. He thinks of this impact in 3 stages. First, he hopes it

will show a new kind of prototype to show people innovative things can be done. Second, it shows different kinds of experiments in order to land on a solution. The third layer is to deploy all of this research into the wild to see how impactful it can be.

Aside from his scientific pursuits, Pat is also an artist and entrepreneur. He shares his belief that art is a way of asking questions, being imaginative and exploring the world's hidden questions. Exhibiting his art around the world has opened his mind up to what technology is really about. His work is about augmenting human capability in the most expressive way possible. His goal is to live an expressive life and express his ideas and ways of thinking through research, art, startup solutions and social impact. He shares that innovation is never a straight path, but rather a winding adventure. Before wrapping up, Pat identifies the exciting new directions currently holding his attention. We need to learn from biology to imagine new kinds of digital, and vice versa. Finally, he offers his best advice for young people interested in the field of computing.

Key Takeaways:

- 0:29 - Introduction to today's episode and guest
- 1:38 - What led Pat to computing and his current studies?
- 5:44 - What is a fluid interface?
- 11:16 - Explaining human AI co-reasoning.
- 17:02 - Looking forward to the use of AI for educational purposes.
- 23:20 - The potential for wearable devices.
- 32:07 - Thinking about innovation and space.
- 34:35 - MIT Media Lab's space exploration project.
- 37:17 - What impact does Pat hope his research will have in the future?
- 41:01 - Pat's perspective on art and innovation.
- 45:05 - How Pat channels his moonshot thinking.
- 51:44 - Exciting new things in Pat's research.
- 55:56 - Advice for young people interested in computing.

Links:

- Learn more about [Pat Pataranutaporn](#).
- Learn more about the Association for Computing Machinery (ACM) at [acm.org](#).
- Learn more about the ACM ByteCast podcast at [acm.org/bytecast](#).

Tags:

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