Knowledge for “Survival”

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When I was a child, I loved reading a science comic series called “Survival Series”, originally from Korea and very popular in Japan. These books followed children who survived dangerous situations such as earthquakes, deserted islands, and space accidents by using scientific knowledge to solve the challenges they faced. Unlike school textbooks, the series presented scientific knowledge not as a collection of facts to memorize, but as a practical tool for understanding and surviving in the real world.

One scene I still remember was from a story set in the Amazon rainforest. The characters desperately needed salt to survive, but in the middle of the rainforest it was almost impossible to obtain rock salt or sea salt. What would you do if you were in such a situation? Instead of giving up, they searched for a bamboo-like plant, burned it, and extracted salt from the ashes! As a child, I was amazed that scientific knowledge could reveal such unexpected solutions hidden in nature. It felt almost like discovering a secret rule of the world.


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After reading scenes like this, I often imagined what I would do if I were in the same situation. I would think step by step about how I could survive using the scientific ideas I had learned from the books. Sometimes I even looked at ordinary plants or objects around me and wondered whether they might also contain hidden uses or principles.

Through these experiences, I gradually developed a habit of thinking about how knowledge could be applied to unfamiliar situations. Instead of simply memorizing scientific facts for school exams, I became interested in understanding why things worked and how different pieces of knowledge could be connected to solve problems.

The “Survival Series” especially influenced the way I approached learning. Whenever I encountered a new scientific idea, I naturally began imagining possible situations where it could become useful. I would mentally simulate problems step by step, asking myself questions such as: “What resources would I have?” or “How could I use what I know to survive?” Looking back, I think this habit trained me to think logically and creatively at the same time.

As I continued studying science in school, I became increasingly attracted to physics and mathematics. I especially enjoyed the moment when a complicated phenomenon could suddenly be explained by a simple idea or equation. Physics taught me that behind seemingly chaotic phenomena, there are often elegant underlying principles. This way of thinking strongly influenced how I approached not only science, but also problems in everyday life. Rather than accepting things as mysterious, I became motivated to search for deeper mechanisms and connections. I think this curiosity

about hidden structures is what eventually drew me toward machine learning and the study of intelligence itself.

Today, we live in the age of AI, where artificial intelligence is becoming an inevitable tool for navigating the modern world. AI systems already assist people in communication, medicine, transportation, and scientific discovery, and their influence will continue to grow in the future. Because of this, I believe it is increasingly important not only to use AI effectively, but also to understand the principles behind how it works.

What fascinates me most is that modern AI systems can learn remarkably complex patterns from enormous amounts of data, even though we still do not fully understand why such learning is possible. Deep neural networks are computer systems inspired by the human brain and form the foundation of many modern AI systems. Deep neural networks often contain billions of parameters and extremely complicated structures, yet they can recognize images, generate language, and solve difficult problems with surprising accuracy. From a scientific perspective, this raises a fundamental question: how can intelligent behavior emerge from the interactions of many simple computational units?

This question strongly reminds me of problems studied in physics. In statistical mechanics, large collections of simple particles interact and collectively produce complex phenomena such as magnetism or phase transitions. Although each individual particle behaves in a relatively simple way, their collective interactions create emergent behavior that cannot easily be understood by examining a single particle alone. I believe

modern AI systems may share a similar structure. Neural networks are also composed of many simple interacting units, and intelligence may emerge from their collective dynamics.

For this reason, I hope to study machine learning, especially deep learning, from the perspective of physics and mathematics. In particular, I am interested in applying ideas from statistical mechanics to understand why deep learning systems generalize so effectively despite their enormous complexity and why learning emerges in these large systems. I am excited by the possibility that ideas from physics may help reveal universal principles behind learning and intelligence. Just as physics seeks simple laws behind complex natural phenomena, I hope AI research can uncover fundamental principles that explain how intelligent behavior emerges from large systems. My goal is not only to improve AI performance, but also to develop a deeper theoretical understanding of intelligence itself. Ultimately, I hope this research can contribute to building more reliable, interpretable, and scientifically grounded AI systems in the future.

The challenges have changed—from surviving in nature to understanding AI—but the spirit of curiosity that the “Survival Series” inspired in me remains the same. I will continue studying to help society “survive” the AI era through a deeper scientific understanding of intelligence.

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I used ChatGPT to check grammar errors, improve the quality of my English sentences, and create an image.