**THE AUTHER PREFACE FOR “THE FRONTIERS OF INTELLIGENCE SCIENCE”**

Intelligence Science is a new science. It is the scientific spirit applied to thought and mental processes and phenomena; it is an emergent multidisciplinary direction of research. At the same time, it represents a long-standing tradition in oriental thought. After the success of science in grasping the rules of the natural world, and despite many false starts, science has finally begun to focus on intelligence. Hence East and West should meet here, Science and Art should meet here, and it is from here that the new scientific paradigm and a new paradigm for civilization should evolve.

In ancient times, human beings faced the challenges of existence. After a long period of evolution, it is the time to go from a survival mode - how to live better - and now face what A. Feln said: to think better is the challenge to our integrity. “Know yourself” was the inscription in the temple of Apollo. It can and should be taken to heart now more than in any other age. Intelligence Science has been born at the right moment.

Despite all their problems, all sciences are becoming richer and more successful, above all technological disciplines. The Internet is the ‘roof’ over the Global Village in which this has taken place. Workers in the sciences and the humanities are already exchanging information about their work and also their feelings about their work. Intelligence Science emerges naturally.

We need to continuously try to face and answer honestly the question: how can the human factor be recognized and integrated naturally into science? Science needs rethinking, humanity needs rethinking, the West and the East need rethinking, so that we can benefit from the richness of human nature and bear the complexity of human thought. Integration is not easy, but we must do it. If all civilizations develop, reach their limits and then fade, contending among themselves, finally they must fail and destroy each other. Alternatively, the Eastern and Western civilizations of today could interact more dynamically observing, understanding and checking each other to form a ‘new’ civilization that could go farther. Which alternative will we choose? Intelligence Science burdens itself with this mission.

From Artificial Intelligence (AI) to Intelligence Science (IS) is a strategic transformation, a major contribution to science. Led by the Chinese Association for Artificial Intelligence ( CAAI), Intelligence Science was born in October, 2003. Since the first one created in Peking University, in just the last decade, 27 universities have set up a Department of Intelligence Science and Technology, and the number should increase. We can say that IS has now created a new frontier of knowledge, going from theory to practice and to education. But our task, the task of this book, is to describe and participate in the research and development of this still-forming frontier. Poincaré said: “if we can occasionally enjoy relative tranquility, it is because of the tenacious struggle of our ancestors. If our vigor, our vigilance relax a moment, we will lose the fruits that our ancestors gained for us.

There is a poem of Master Hong Yi that can describe this new science: “I come for the plant/ I leave the flower that has not bloomed yet,/it does not mean this is not a fine scene,/waiting for later generations.” Due to the interactive changes involving East and West I mentioned above, our civilization has achieved a high degree of maturity in what is now a precious wealthy and peaceful age . First we should be thankful for the great fruits and wisdom which human beings have gained through tenacious struggle that we have arrived at such a moment and can formulate such thoughts. Generation by generation, the development of science and civilization reaches out and transmits them to us. Such a great flower is just blooming now, and is in its most beautiful period. The end of the 20th Century is safe, the steps of the 21st Century are smooth and steady, and the great harmony and the great adventure of human beings should begin.

“We must know, we will know!” (Wir müssen wissen / Wir werden wissen) these lines are engraved in the gravestone of the mathematical King David, David Hilbert. We need to have the same confidence and will. We should remember the same warning of Lu Xun: “but if you want to have some rank in culture, you have to be tenacious.” At the same time there is the wisdom of the farmer’s proverbs: “In seeding the transplants in the paddy field, older and younger are both needed” and “when everybody adds fuel, the flames rise high.”. All persons who are concerned about civilization should optimistically make the effort together to integrate, to break through, to reach an age of a new quality. Such is my invitation to you: let us reappraise all of the positive results of our civilization. Let us take this massive ‘seed’, and make it sprout and grow to achieve a higher level of civilization. To open the prelude, to face dawn, and with this new Intelligence Science create a golden age!

In conclusion, I should explain here that my personal capacities are limited; I am pressed for time and ask for the comprehension of my readers. I am not trying to be self-deprecatory; this is just a brief expression of my inner apprehensions and the heavy tension I am under as well as of the the excitement I feel at the same time.

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PS. The above is taken, with slight modifications, from my Preface to the book on Intelligence Science that has recently appeared in Chinese. Many thanks to the list for allowing me to discuss this theme, and many thanks to all FISers for the great discussions we are having!

**QUESTIONS FOR DISCUSION**

1. Could science and orient thought can be coherent and translate each other?
2. IS is the dynamics of mind. What are the general rulers?
3. Is sinology and Buddhism a kind of intelligence science?
4. From AI to IS is a great step, what has happened and what is the meaning?
5. How to formalize Orient thought. The relation of mind and matter.
6. The three kinds of civilization genes: science, sinology, and Buddhism. How can such a structure circle? Can such three aspect united as a new one new civilization? The united of recognize manners.
7. What is relation of Information science and Intelligence Science?
8. Science and Art can be study in same view of IS.
9. IS can help us discuss new education. How to train interdisciplinary ability from the begin?
10. The integrate study manners is begin to instead of the analyses kind. IS should bring new methodology. What are they?
11. How can intelligence change from A-pole to B-pole? Or say change between different layers? What is the function of “Xing” as an operator?

**THE MEANINGS OF THE TURN FROM ARTIFICIAL INTELLIGENCE TO INTELLIGENCE SCIENCE**

 Figure 1.1 the Status of Intelligence Science

The sublimation from AI to IS, is an important contribute of CAAI (Chinese Association For Artificial Intelligence) to science. It began at 2003. It is the of collective power break through the hard gap of AI. The difficult is just as John McCarthy described: “If we want to make a breakthrough in AI, we need 1.7 Einstein, 5 Faraday, 2 Maxwell and 4 Manhattan Projects. ” now we gain a real direction. Though we l have not seen obvious effects yet, but the influence profoundly.

 The meanings of this turn are:

1. The core of AI study transfers: from the probing technology of simulation to intelligence, change to seriously study the essence of intelligence itself. Once such a transfer was proceed that it should be not limit in the layer of AI.
2. Research contents spread fully: as the core of study transferring, we can thoroughly implement scientific spirit, from human thought to natural intelligence completely.
3. Contribute research methods the study of intelligence is new and old both. it need powerful interdisciplinary, multidisciplinary. And these should abundant creative study manners.
4. The statue in the structure of civilizations: intelligence science should guide science develop.
5. Research target is loftier: it arrive the highest and most complete realm of science. It will help overcome secret worry and questions in prescience times.
6. The burden of IS research are more tremendous and full of challenge. Even renew the meanings of science and scientist. It should undertake now predicament of human being more enough.
7. It should keeps the conclusiveness and leadership of science, rather than controlled by economy and industrial technology.
8. It should bridge three big symmetries: West and East, science and art, mind and mater.