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Hanfei Bao

1963-1970: Medical Faculty of Shanghai Medical University, student

1970-1978: Qinghai Steel-Iron Plant Hospital, physician

1978-1991: Tongji Medical University (Wuhan), teacher (assistant, lecturer, vice professor), in Dept. of Embryo-Histology, concurrently being vice director of Dept of Medical Informatics

(1984-1986: visiting scholar in the Department of Medical Informatics, Free University, the Netherlands).

1991---: Shanghai University of Traditional Chinese Medicine (TCM), teacher(professor), Successively held the posts of
Director of the Department of Embryo-Histology,

director of computer Centre,
director of Network Center,
Director of The Lab of Informationization and Standardization of TCM

His knowledge and research areas include clinical medicine (West Medicine and TCM), Histo-Embryology, Medical Informatics, Artificial Intelligence of Medicine, Medical Ontology, Logic, Pan-systems Theory, Self-organization Theory, Fractal Theory, Chaos Theory, Image Processing, Stereology, Pattern Recognition, Software Engineering, Linguistics, Semantics, Data-mining, Complexity Science, Computer Programming (C, Foxpro, HTML,XML, JAVA, CGI, Linux, Shell, etc) , Complexity Science, The Theory of BioMedical Knowledge Integration(BMKI), etc.

In the fields of medical knowledge engineering, Prof. Hanfei Bao successively originated

(1) Quantitatively or Qualitatively Medicine Simulating and Operating by Computer (QMSOC);
(2) Integratable Relationized Electronic Medical Book (IREMB);
(3) Homo-Information Coded Editing(HICE);
(4) Human-Computer Commonly Understandable and Communicatable Medical Language;
(5) The Theory of Biomedical Knowledge Integration(BMKI).

Prof. Hanfei Bao originally presented and ventured *The Theory of Biomedical Knowledge Integration(BMKI)* , publishing on this topic 10 articles(I - X) in Chinese and 7(I -VII) in English. In these papers Prof. Bao (1) Presented out *supply-demand coverage principle* in knowledge integration ; (2) explained the differences in the nature between *The Mental-originated components and Physical-originated components* of knowledge and their different behaviors in AI to right; (3) carried through the discussions on *The heterogeneous components or Heterology of scientific thinking in human brain*, and probed into *the principles of the formations of the inner-enlightening components and the out-enlightening components* as well as the concepts of *meta-concept* and *meta-knowlegde*; (4) brought up *The Theory of Background Space of Knowledge(BSK)* and analyzed the BSK problems in knowledge-units and their intelligent acts. (5) propounded *The Principle of Determination by Cognitive Goal(CG)*, discussed *The Relationships between CG, BSK and Knowledge Granularity and Certainty* and giving out dozens of the relative

concepts and definitions according based on this principle; (6) more profoundly discussed *The relationships between the presentation forms of knowledge and its physical natures and the relationships between those forms and the degrees of the integrality and structure of knowledge* in Artificial intelligence ; (7) presented *The Basic Model of BioMedical Knowledge Integration* : a mixed model of empirical knowledge and rational reasoning, ie *the Compass-Beacon Model Declaration for Knowledge Integration*, achieving a new understanding on so called *Type I* or *Type II problems* in AI ; (8) groped for the concept of *knowledge frameworks(KFs)* in Biomedicine and carried out some other primary researches such as on *KFs, integration operators, the relationships between the change of dimension and the change of freedom degree,* the new concepts such as *The Relational Dimension and Generalized Virtual or Digital Human Body, etc* (9) did some preliminary works of exploration on *the recombination of heterogeneous spaces with narrow-domains* in biological structures, the new concept of *Integrated Dimension(ID)* or *Kinetic Dimension(KD) Spaces(IDS* or *KDS), reciprocal transform between hetero-dimensional spaces*, and *the biologic physico-mathematics*. (10) got some results in the researches about knowledge triplet, eg *The Role Transitivity Law between Variable and Value of variable* in the hierarchical structure of knowledge triplet.

The software programs he developed include:

(1) The System for Pattern Recognition;
(2) System for Stereology;
(3)The sites of IREMB-Internet-West Medicine are: www.sh.col.com.cn/bhf/bhf/cbao.htm (in Chinese) and www.sh.col.com.cn/bhf/bhf/ebao.htm (in English).(Stopped Now).
(4) Many other software.

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