Editorial

Rubin Wang · Fanji Gu

Published online: 7 December 2006
© Springer Science+Business Media B.V. 2007

Fifty years ago, enthused by successes in creating digital computers and the DNA model of heredity, scientists were confident that solutions to the problems of understanding biological intelligence and creating machine intelligence were within their grasp. Progress at first seemed rapid. Giant ‘brains’ that filled air-conditioned rooms were shrunk into briefcases. The speed of computation doubled every 2 years.

What these advances revealed is not the solutions but the difficulties of the problems. We are like the geographers who ‘discovered’ America, not as a collection of islands but as continents seen only at shores and demanding exploration. We are astounded less by the magnitude of our discoveries about how brains cogitate than by the enormity of the tasks we have undertaken, to explain and replicate the higher functions of brains.

Five decades of brain research have led to the emergence of a new field, which spans the entire range of brain cognition from quantum fields to social interactions, and which is combined by the conceptions of nonlinear neurodynamics operating simultaneously at and across all levels. A new breed of scientists has emerged, schooled in multiple academic disciplines,

comfortable in working with data from different levels, and conversant with the mathematical tools that are essential to cross boundaries.

For surely cognition in its essence is dynamic and multilayered, and pursuit of new clues inevitably leads from one layer to the next, both reductionist and holistic. Something more is needed to track these clues than the collaboration of experts. It is the self-education of scientists in each field to journeyman competence in adjacent fields.

Here is the service that the Editors of **Cognitive Neurodynamics** are pledged to provide. Until now, papers in cognitive neurodynamics are widely scattered throughout a variety of journals, no one journal being solely dedicated to this salient topic. In order to promote the integration of brain science as a whole, **Cognitive Neurodynamics** will provide a forum for scientists and engineers, including neuroscientists, neuropsychologists, cognitive scientists, physicists, mathematicians, IT engineers, and many other experts, who will be encouraged to publish their research in one periodical that can be read by all workers in this field. We aim not merely for convenience but for intelligibility, in order to surmount the barriers between traditional disciplines. **Cognitive Neurodynamics** aims to provide a unique platform for all approaches and angles, with discussions and debates among all participants.

Cognitive Neurodynamics will publish both basic and applied (medicine or engineering) research. Original research papers, review articles, brief communications, discussions, book reviews, and congress reports are welcomed. We encourage submission of short papers, in which authors aim for succinctness in presentation. We do not want to set rigid page limits, if

R. Wang (✉)
Institute for Brain Information Processing and Cognitive
Neurodynamics,
School of Information Science and Engineering, East China
University of Science and Technology, 130 Meilong Road,
Shanghai 200237, P. R. China
e-mail: rbwang@ecust.edu.cn

F. Gu
Department of Physiology & Biophysics, Fudan University,
220 Handan Road, Shanghai 200433, P. R. China
e-mail: sicpb2004@fudan.edu.cn

an important complex issue cannot be elucidated with a short article.

We hope this journal will become a forum for all our colleagues working in cognitive neurodynamics and related fields. We look forward to receiving your manuscripts as well as comments and suggestions. After all, it will be your participation that will make this journal successful.

For more detailed information (such as editorial board, instruction to authors, online submission etc.), please visit our website at: <http://www.springer.com>

At the last but not the least, we would like to express our heartiest gratitude to all our editorial board members, reviewers, and authors, especially, to Prof. Walter J. Freeman and Prof. Hermann Haken.