Status, Challenges and Future Trends of Brain Inspired Computing

Luping Shi
Center for Brain Inspired Computing Research
Optical Memory National Engineering Research Center
Department of Precision Instrument
Tsinghua University, Beijing 100084, China
Email: lpshi@tsinghua.edu.cn

ABSTRACT

Brain inspired computing system is very important for building up real intelligent systems. In this talk, the current status and the recent progress of brain inspired computing research are introduced. The key challenges of this research including fundamental theory, neuromorphic chip design and fabrication, and software environment are analyzed. The possible solutions, development strategy and roadmap, and future trends of this research are discussed.

Keywords: Brain inspired computing, intelligent systems, neuromorphic chips, cognitive memory, software environment, trends.

ABOUT THE KEYNOTE SPEAKER

Lu Ping Shi, is a professor of brain inspired computing, national 1000 talent distinguish professor and SPIE fellow, director of center for brain inspired computing research, and director of optical memory national engineering research center, Tsinghua university, China. He received his Doctor of Science from University of Cologne, Germany in 1992. In 1993, he worked as a Post-doctoral fellow in Fraunhofer Institute of Applied Optics and Precision Instrument, Jena, Germany. From 1994 to 1996, he worked as a research fellow in City University of Hong Kong. From 1996 to 2013 he worked in data storage institute,a-star, Singapore as a senior scientist and division manager and led nonvolatile solid-state memory(NVM), and artificial cognitive memory and optical storage researches. He joined Tsinghua university in 2013. His main research areas include brain inspired computing, NVM, optical data storage, and integrated opto-electronics. He has published more than 150 papers in prestigious journals including Science, Nature Photonics, Advanced Materials, Physical Review Letters, filed and granted more than 10 patents and conducted more than 60 keynote speeches and invited talks at many important conferences during last 10 years. He is the recipient of the National Technology Award 2004 Singapore. He served as general co-chair of IEEE NVMTS 2011-2015, the 9th Asia-Pacific Conference on Near-field Optics2013, East-West Summit on Nanophotonics and Metal Materials 2009 and ODS2009.