

Citation

For pioneering contributions in innovation of a concurrent object-oriented computing model as well as its theoretical and practical research and development



Dr. Akinori Yonezawa

Positions and Organizations :

Director, Software Technology and Artificial Intelligence Research Laboratory (STAIR Lab), Chiba Institute of Technology
Professor Emeritus, The University of Tokyo

Degrees : Ph.D. (Massachusetts Institute of Technology (MIT), 1978)

Doctor of Engineering (The University of Tokyo, 1978)

Date of Birth : June 17, 1947

Brief Biography :

- 1970 Graduated from the Department of Mathematical Engineering and Information Physics, School of Engineering, The University of Tokyo
 - 1972 Completed the Master's program at the Graduate School of Engineering, The University of Tokyo, with a major in mathematical engineering and information physics
 - 1974 Research assistant at the Department of Electrical Engineering and Computer Science, MIT, United States
 - 1978 Assistant, School of Science, Tokyo Institute of Technology
 - 1978 Completed the Doctoral course at the Graduate School of the Department of Electrical Engineering and Computer Science, MIT
 - 1983 Assistant professor, School of Science, Tokyo Institute of Technology
 - 1988 Professor, School of Science, Tokyo Institute of Technology
 - 1989 Professor, School of Science, The University of Tokyo
 - 2000 Professor, Graduate School of Interdisciplinary Information Studies, The University of Tokyo (transfer)
 - 2003 Professor, Graduate School of Information Science and Technology, The University of Tokyo (transfer)
 - 2006 Director, Information Technology Center, The University of Tokyo (until March 2010)
 - 2006 Deputy director, Research Center for Information Security, National Institute of Advanced Industrial Science and Technology (AIST) (until March 2011)
 - 2011 Resigned from The University of Tokyo
 - 2011 Deputy director, RIKEN Advanced Institute for Computational Science (until March 2015)
 - 2015 Director, STAIR Lab, Chiba Institute of Technology
- Has held a large number of various other positions in succession

Main Awards and Honors:

- 1992 Okawa Publications Prize
 - 1999 ACM Fellow
 - 2004 Japan Society for Software Science and Technology Fellow
 - 2008 AITO Dahl-Nygaard Prize
 - 2008 Japan Society for Software Science and Technology Distinguished Service Award
 - 2009 Funai Foundation (FIT) Funai Achievement Award
 - 2009 Medal with Purple Ribbon
 - 2010 Information Processing Society of Japan Achievement Award
 - 2011 Information Processing Society of Japan Fellow
- Has also received a large number of best paper awards etc. from various societies and journals

Main Achievements :

Dr. Akinori Yonezawa has a global track record in pioneering theories and practical research in the field of information science (computer science), as typified by his concurrent object-oriented computation models (principles and methods for developing software for parallel and distributed computers). The concept of concurrent object-oriented computation is one of the foundations of the program development methods used in today's parallel and distributed computers (computers that are configured by mutually combining a large number of computers). The concept has a significant direct and indirect impact on researchers at the front lines worldwide, beginning with Europe and the United States, and also

serves in a large number of practical capacities.

Much of the software that is being put into practice in today's computer systems and web service systems is created using a manufacturing and development method known as "object oriented." The prototype for this method can be seen in research conducted at Norwegian Computer Center at the end of the 1960s, but in the mid-1970s, while Dr. Yonezawa was enrolled in the Doctoral course at MIT, he hit upon the idea of "concurrent objects," which involved generalizing the concept of the object and embedding small computer-like entities known as threads individually into a large number of objects one by one. Dr. Yonezawa carried out modeling and simulations of various phenomena that used this concept for the first time in the world. Upon obtaining his degree and returning to Japan, Dr. Yonezawa used this concept to undertake a series of research and development projects, including (1) programming languages based on "concurrent objects," (2) higher order and reflection of "concurrent objects," (3) mathematical models of "concurrent objects," and (4) high-efficiency execution methods on super-parallel computers for software systems built based on "concurrent objects," and in doing so he built up a highly remarkable academic and practical track record internationally. This "concurrent object" concept is one of the foundations of the program development methods used in today's parallel and distributed computers, including cloud computing environments and supercomputers.

In addition, against the backdrop of Dr. Yonezawa's theoretical and practical research record in software systems, over a period of approximately four years from fiscal 2000 he proposed, implemented and led "Research on Implementation Schemes for Secure Computing," a research project based on a Grant-in-Aid for Scientific Research on Priority Areas. This Scientific Research on Priority Areas was extremely highly praised, and in a Ministry of Education, Culture, Sports, Science and Technology white paper issued in February 2004 the research was cited as one of five research projects that had made the greatest contribution to society, out of the research projects carried out based on Grant-in-Aid. Incidentally, in addition to Dr. Yonezawa's research, the white paper cited the research of Yasuharu Suematsu, Hideki Shirakawa, Ryoji Noyori and others.

Dr. Yonezawa has also racked up considerable achievements in terms of developing human resources. After being appointed as an assistant professor at Tokyo Institute of Technology he went on to take up a succession of positions that included serving as a professor at The University of Tokyo's School of Science and as a professor at the university's Graduate School of Information Science and Technology, and as a doctoral advisor over that period he helped to foster an extremely large number of individuals who obtained doctoral degrees (32 in total, including six foreigners). Many of these individuals who earned doctorates are active in education and research in the field of information science (computer science) as professors, associate professors and in other roles at The University of Tokyo, Tokyo Institute of Technology, Kyoto University, Nagoya University, Tohoku University and Ochanomizu University.

In recognition of these achievements, Dr. Yonezawa has received a large number of awards and titles both inside and outside Japan, including being named a fellow by the Association for Computing Machinery (the world's largest computing society) in 1999. Additionally, in 2008 he received the AITO Dahl-Nygaard Prize, the highest award for object-oriented software systems development and technology, from the Association Internationale pour les Technologies Objets (AITO; an international association concerning object-oriented technology). Dr. Yonezawa received the Medal with Purple Ribbon in 2009.

As is outlined above, alongside Dr. Yonezawa's preeminent research achievements worldwide he has trained a large number of outstanding researchers and has devoted himself to advancing Japan's and the world's learning. Furthermore, the outcomes of his research have become the fundamental and pioneering elements of the parallel computer systems that are widely used worldwide, so his social achievements are truly remarkable. The Okawa Prize is hereby presented to Dr. Yonezawa in commendation of those achievements.