

Hideyuki Takagi: Member of the SMCS Board of Governors [Meet Our Volunteers]

Takagi, Hideyuki
Faculty of Design, Kyushu University : Professor

<https://hdl.handle.net/2324/2344578>

出版情報 : IEEE Systems, Man, and Cybernetics Magazine. 3 (1), pp.35-36, 2017-01-16. IEEE
バージョン :
権利関係 :



are lucky, we can use the delete button, but most of the time we have cannot choose to ignore the data stream that is forced through our sensory system toward our brains. Intelligence and consciousness provides us with the ability to extract meaning from the information entering our senso-

ry channels and helps to distinguish the meaningful from the meaningless. By overloading our senses, we may gradually lose this ability. Brain-inspired technologies and human-centered computing can help to ensure healthy progress for humanity far into the future.

References

- [1] R. Kozma and W. J. Freeman, *Cognitive Phase Transitions in the Cerebral Cortex—Enhancing the Neuron Doctrine by Modeling Neural Fields*. Heidelberg: Springer Verlag, 2016.
- [2] R. Kozma, “The race to new mathematics of brains and computers,” in *Proc. IEEE 2013 Int. Joint Conf. Neural Networks*, Dallas, TX, pp. 21–23.

IEEE Systems, Man, and Cybernetics (SMC) Magazine introduces Hideyuki Takagi, a professor in the Faculty of Design at Kyushu University, Japan.

SMC Magazine: Describe your current position, research areas, and interests.

Takagi: I am a professor in the Faculty of Design at Kyushu University, Japan; a member of the IEEE SMCS Board of Governors; and the chair of the IEEE SMCS Japan Chapter and the IEEE SMCS Technical Committee (TC) on Soft Computing.

My research focus is computational intelligence. The featured direction is humanized computational intelligence; I am trying to combine human capabilities and those of computational intelligence. Interactive evolutionary computation (IEC) is one such approach. My featured IEC research includes analyzing human characteristics by analyzing the characteristics of the optimized target system by the IEC user—IEC for human science, in other words, while the majority of IEC research is applying IEC to new applications and developing methods for improving IEC performance.

SMC Magazine: What motivates you to do research, teach, and volunteer?

Takagi: I wanted to be a researcher when I was a high school student

Hideyuki Takagi: Member of the SMCS Board of Governors



Takagi states that he is often interested in “throwing the first stone” in a research area.

because of the divergent nature of research. An individual’s research influences other researchers, and subsequently their work also influences still other researchers. This expanding and broadening influence toward the end of practical real-world applications indirectly but widely is my research motivation, and I feel it is my purpose in life. If I had preferred to complete

the development of a system from beginning to end instead of influencing others, I would have been an engineer.

My educational motivation is rather opposite of that of research, and the growth of my supervised students delights me as if I completed their craftwork.

As for volunteering, I feel that I must repay the academic societies that provide us opportunities for our research activities by organizing conferences, publishing journals, and volunteering my time and talent to them.

SMC Magazine: How did you get started as a volunteer (in the IEEE and elsewhere)?

Takagi: The first trigger was when I was asked to start the TC on Soft Computing by Dr. Michael H. Smith (president of the SMCS from 2002 to 2003), and I have served as its chair since 1998.

My first trigger to volunteer for the Japanese academic society was when I was elected as the Kyushu Chapter chair of the current Japan Society for Fuzzy Theory and Intelligent



Lotfi Zadeh (left) spends some time at Takagi's home in 2004.

Informatics (SOFT) in 1997. Since then, I have served SOFT as an executive member, an auditor, and a councilor from 1997 to 2008 and the Japanese Society for Evolutionary Computation as an executive member from 2010 to 2012.

SMC Magazine: Describe your early work for the SMCS.

Takagi: I have served the SMCS in a variety of roles, including vice president (2006–2007, 2008–2009), Board of Governors member (2001–2003, 2004–2006, 2010, 2016–2018), TC coordinator (2004–2005), chair of the TC on Soft Computing (1998–2004, 2008–present), lecturer for the Distinguished Lecturer Program (2006–2007, 2008–2009, 2010–2011), associate editor of *IEEE Transactions on Cybernetics* (previously *Systems, Man and Cybernetics, Part B*) (2001–present), and chair of the SMCS Japan Chapter (2014–2015, 2016–2017).

SMC Magazine: What do you consider the most challenging aspects of the SMCS?

Takagi: The Technical Map Project was my big challenge during my

volunteer work. When I was vice president of technical activities, I started the project to compile new technical keywords that will grow rapidly in our SMCS areas in the near future. We asked text mining researchers to extract keywords from SMCS conference/journal papers and found a wealth of key techniques that we predict will be of interest shortly.

SMC Magazine: What achievement are you most proud of?

Takagi: The immense impact of our paper on neuro-fuzzy systems, which led to its adoption by industry, is the most notable achievement in my research life.

"If I had preferred to complete the development of a system from beginning to end instead of influencing others, I would have been an engineer."

The booming of neural networks and fuzzy logic systems happened independently but in the same year, 1987. Dr. Hayashi (now a professor at Kansai University), whose major area was fuzzy logic, and I, who focused on neural networks, worked jointly for Panasonic Central Research Laboratories in those days and published a paper on neuro-fuzzy system at a Japanese domestic conference in May 1988 followed by an international conference in August 1988. It was the big trigger to start the neuro-fuzzy area booming in Japan since 1988, in the United States since 1990, and in Europe since 1994. The basic patents that covers almost all neuro-fuzzy systems were also established (U.S. Patent RE36,823).

I am a researcher who is interested in throwing the first stone in a research area. I moved on from the neuro-fuzzy area because of the large influx of researchers into this area and started waving a new flag: humanized computational intelligence and IEC.

SMC Magazine: Tell us about your social life.

Takagi: I am married with two daughters, who have been independent for several years and work away from home.

SMC Magazine: Can you give us some biographical highlights?

Takagi: The career achievement I am most proud of is the industrial impact of our neuro-fuzzy paper, mentioned earlier. Working for both industry and academia is my other biographical highlight, including 14 years with Panasonic Central Research Laboratories, two years as a visiting researcher at UC Berkeley, and 22 years working for the Kyushu Institute of Design and Kyushu University (the two universities merged in 2003).