Dr. V RAJARAMAN

Honorary Professor, Supercomputer Education & Research Centre

Brief Biography

Prof. V. Rajaraman obtained a B.Sc. (Hons.) in Physics from Delhi University in 1952, DIISC in 1955 and AIISC in 1957 from the Indian Institute of Science, Bangalore, in Electrical Communication Engineering, SM in Electrical Engineering from MIT in 1959 and Ph.D from the University of Wisconsin in 1961. He was an Assistant Professor of Statistics at the University of Wisconsin in 1961-62 and joined Indian Institute of Technology, Kanpur, as an Assistant Professor of Electrical Engineering in 1963 and became a Senior Professor in Electrical Engineering and Computer Science in 1973. He headed the Computer Centre at IIT, Kanpur, from 1967-72 and again from 1976-79. At IIT/Kanpur he initiated the computer science educational programme and guided its growth from 1966 to 1979. He joined the Indian Institute of Science in 1982 where he initiated the plan to set up a National Supercomputing facility in 1983. It was set up with a funding of Rs.50 crores from the Government of India. He also set up the National Centre of Science Information with funding from the University Grants Commission for providing selective dissemination of information to scientists at Indian Universities. The other activities started at the Institute of Science by him include Computer Aided Design of Electronic Systems and Knowledge Based Computer System Development. He was an IBM Research Professor of Information Technology at the Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore from 1994 to 2001. Currently he is Honorary Professor in Supercomputer Education & Research Centre, Indian Institute of Science, Bangalore. Prof.Rajaraman guided 30 Ph.D students in Computer Science, published over 60 technical papers in reputed journals and is the author of sixteen books in Computer Science Currently Prof.Rajaraman's interests are in design of information systems and development of Computer based self-study material in information technology.

During 1965-66 he was a visiting Assistant Professor of Computer Science and Electrical Engineering at the University of California, Berkeley and during 1972-73 a visiting IBM Research Fellow at the Systems Development Institute, Canberra, Australia. He pioneered Computer Science education and research in India and in recognition of this he was awarded the Shanti Swarup Bhatnagar Prize in 1976 and the fellowship of the Computer Society of India in 1981. He was awarded the Homi Bhabha Prize for research in Applied Sciences by the University Grants Commission, India, in 1986, National Award for Excellence in Computer Engineering by the Indian Society for Technical Education in 1988, Rustom Choksy Award for Excellence in Engineering Research by the Indian Institute of Science, Om Prakash Bhasin Award in 1993. In 1997 Dataquest Industry Panel gave him "life time achievement award" in Information Technology. In 1998 he received the Zaheer Medal of the Indian National Science Academy. He was awarded Padma Bhushan by the President of India in 1998 In 2005 he was awarded the “Life Time Contributions to Engineering” award by the Indian National Academy of Engineering. Prof.Rajaraman has been active as a consultant to industry. He was a member of the Electronics Commission, Government of India, from 1979-1982. During this tenure as Chairman of Manpower Committee he initiated a plan to increase the human resources available in I.T by proposing Master of Computer Applications (MCA) program which was a unique programme in India. He also initiated plans to encourage software export by allowing import of mainframe computers. He was Director of CMC Ltd., from 1990 to 1995 and Director of Canbank Computer Services Ltd., Bangalore, from 1995-2000. He chaired the All India Board on Information Technology of AICTE from 1193-2003.. He is on the board of directors of Encore Software Limited and Indian Institute of Information Technology and Management of Kerala. He is a member of the investment advisory committee of Kerala Venture Capital Fund Ltd., a division of Kerala State Industrial Development Corporation. He is also I.T advisor to Indian Institute of Management, Kozhikode. His responsibilities there include to advise on campus computer networking and I.T.Curriculum to Management students. Prof.Rajaraman is a Fellow of the Indian National Science Academy, Indian Academy of Sciences and Indian National Academy of Engineering and Computer Society of India and Institution of Electronics and Telecommunication Engineers.

Academic Qualifications: 1949 - 1952 B.Sc. (Hons.) Physics, Delhi University,
1952 –1957 DIISc, AIISc Electronics & Communication Engineering, Indian Institute of Science, Bangalore
1957 S.M in Electrical Engineering, M.I.T. (U.S.A.);1961 Ph.D for work in Adaptive Control Systems, University of Wisonsin, U.S.A

INTERVIEW TRANSCRIPT

If Wiener were here today, what would you say would be the title he'd give the conference?

He would not like a conference based on his name. May be he would have titled it "Cybernetics in the 21st century".

Who do you think he'd absolutely insist on attending this conference?

Roger Penrose and Noam Chomsky

Wiener predicted the existence of the automatic factory, argued that electronic computers were thinking machines capable of taking over many human decision-making processes, and cautioned that humans must not let machines become their masters. How are we to understand the confluence of cybernetics with liberal humanism - is there one?

We have now understood the limitations of artificial intelligence. Commonsense knowledge, religious beliefs, and consciousness are the drivers of humanism.

The cyborg narratives today are very different to the cyborg narratives Wiener struggled to authorize. How do you explain this?

We have learnt to live with "Intelligent machines" as it has become part of our daily life.

A bit of controversy surrounds some periods of Wiener's work. During World War II he immersed himself in military-funded research and used cybernetics to create more effective killing machines, but, after the war he announced his opposition to nuclear weapons and refused to do military research. Was he struggling to envision the cybernetic machine with the image of a humanistic self?

No one foresaw the extent of mass killing of innocent people by nuclear weapons. His work, I believe, was more to defend people from attacks rather than designing weapons of mass destruction.

Would you say this was partly due to Einstein's campaign where he fought to moderate the partnership between science and government sounding alarm that it could dangerously place technology and its power in wrong hands?

All well meaning scientists were shocked by the mass killing of innocents by atomic bombs and the long term adverse effects of these weapons.

Wiener frequently depicts himself in his autobiographies as an outsider, standing apart from a privileged group whose boundaries do not include him. He made it a point to decline scientific prizes and to resign from prestigious professional groups in which he was offered membership if he did not agree with their goals. How do you explain it? Would you say other prominent scientists of his time shared similar feelings? Would you say this

is better or worse today?

Weiner was a non-conformist and thought he was above all types of "recognition". His work was path-breaking. Maybe Linus Pauling and Bertrand Russell were in the same league. Currently Noam Chomsky is, I believe, a non-conformist.

This is a groundbreaking conference in many ways. Can you give us a few examples of what makes it of paramount importance today?

We are going through difficult times as routine jobs are taken away by machines and a large proportion of people are capable of doing only routine jobs. In a population only a certain percentage can do non- routine creative jobs.

Can the idea that we have of the human person, survive the ongoing stride of scientific discovery?

I believe so. New generation is more knowledgeable and creative. However the gap between the "educated and creative" and others will increase.

The advancement of modern technologies is inadvertently reshaping our world and the values traditionally held by humans. How do you see cybernetics guiding this new direction?

Cybernetics use in education may lead to new direction.

As ethics merges with science in cybernetics, and is no longer about who's to say an action is morally right or wrong, but - what's to say an action is right or wrong, do we know and who do we turn to for proper answers?

Belief systems (such as Zen Buddhism) and examples set by great souls like, Gautam Buddha, Mahatma Gandhi, Ramana Maharishi, and Jesus Christ will guide ethical behavior.

When an individual's consciousness is based on a part human part machine nervous system, in particular when they exhibit Cyborg consciousness, will they hold to Cyborg morals, values and ethics, potentially distinctly different to human morals, values and ethics?

Cyborgs are the creation of humans. My doubt is, will they have autonomous thinking and resultant morals or will the designers unconsciously build into Cyborgs their own moral values…?

Interviewers: Ms Jana Paripovich and Dr T. V. Gopal - for 21st Century Wiener.