

Professor Raj REDDY

Citation

There are two things we should know about Prof Raj Reddy. He has big dreams and spends a whole lifetime chasing them. Secondly, he is a man who makes things happen, who creates something out of nothing. He was instrumental in helping to establish the Rajiv Gandhi University of Knowledge Technologies in India. This institution has a special mission of providing hi-tech education for the children of low income families and gifted youth from India's rural areas.

In the US, where he spent more than 40 years at Carnegie Mellon University, he is famous for inspiring people, attracting talent and funds for institutional building. He was the founding Director of the Robotics Institute from 1979 to 1991. When he became Dean of the School of Computer Science, he played a pivotal role in creating the Language Technologies Institute, the Human Computer Interaction Institute, the Center for Automated Learning and Discovery, and the Institute for Software Research.

His research interests are clear from the above list. He is passionately interested in perceptual and motor aspects of intelligence such as speech, language, vision and robotics. His interest in languages is not surprising, given that his native India is a land of many languages — a prototypical tower of Babel. But he is not just interested in languages per se, rather in their interplay with the larger issue of intelligence, which to him is a lifetime project.

With his training in computer science, his ruling passion for many years has been developing a computer system that recognizes and understands the spoken word the way human beings can.

Under his leadership, the research team at Carnegie Mellon has developed large vocabulary connected speech recognition systems called Hearsay and Harpy, as part of speech understanding research at CMU. Many breakthroughs in speech research have come from the graduates of his university and many of them have gone on to become leaders in the field.

What drives Prof Reddy is the desire to use technology to serve humanity, whether it is robotics or artificial intelligence or speech technologies. From speech technologies came various commercial speech recognition systems such as The Language Tutor, an automated system that helps children to learn to read. Other applications include the day-to-day service of automated phone centers, and robots that respond to the command of human voice. Modestly, he says that after working on speech technology for over 30 years, he has only solved 10% of the problems.

Internationally, Prof Reddy served as the Chief Scientist for the Le Centre Mondial Informatique et Ressource Humaine in France. For his valuable contributions to this project, he was awarded the Legion d'honneur by French President Francois Mitterand in 1984. His team is currently working with the governments of China and India and their research scientists.

Another project that consumes his interests and energy is the establishment of a universal digital library, making creative works and the sum of all human knowledge accessible anytime, anywhere to anybody. As if he didn't have enough on his hands, he was also involved in providing

healthcare information to the poor and illiterate people using ICT.

Prof Reddy is a very motivated man, with a big heart in service of all humanity. All his projects will likely take more than a lifetime to complete. But major human progress needs people of extraordinary courage and commitment. As the Dean of Carnegie Mellon's School of Computer Science says of him, Prof Reddy has "a special ability to see beyond the limitations of current technology to understand what the future can bring." He took on an "overwhelmingly difficult task" 40 years ago, and through the work he pioneered, our machines are now able to understand when humans talk to them. Prof Reddy has both the vision and the innovative energy to make technology serve the needs of developing countries.

By training and by nature, Prof Reddy is an internationalist. He may be Indian by birth. But his field of vision is borderless, not surprising for a man with an international education. He has a first degree from the University of Madras, a Master of Technology degree from the University of New South Wales in Australia and a PhD in Computer Science from Stanford University. The honors that have been heaped upon him are also international in range. In addition to the French President, he was also honored by the President of India in 2001.

He has been awarded honorary doctorates from the University of New South Wales, the University of Warwick, Sri Venkateswara University, Université Henri Poincaré, Jawaharlal Nehru Technological University, and the University of Massachusetts, among others.

His professional honors are as numerous as his honorary doctorates. He was President of the American Association for Artificial Intelligence from 1987 to 1989, and was the recipient of the 1994 Turing Award, the Computer Science's Nobel

Prize. He was named the 2008 James L Flanagan Speech and Audio Processing Award for his efforts and achievements in developing efficient algorithms that made possible the rise of early continuous speech recognition systems, enabling computers to understand spoken language. He is a fellow of the Institute of Electrical and Electronics Engineers, Fellow of the Acoustical Society of America, Fellow of the American Association for Artificial Intelligence, member of the National Academy of Engineering, and Member of the American Academy of Arts and Sciences.

But for a scientist driven by a desire to achieve technological breakthroughs for humanity, honors and awards will not distract him from his lifetime pursuits. He is, for example, busy applying the Reddy "80/20 rule" in computer intelligence, meaning that the computer should be made to perform 80% of the task, leaving the other 20% to the human agent. Ever the creative pragmatist, Prof Reddy believes this rule of his has the advantage of speeding things up. This way, a problem that takes 20 years to solve, may be solvable within 10 years, while the remaining 20% may take another 10 years to crack. He favors spending time to solve 80% of the problem, rather than squandering most of our time on the intractable 20%.

This is the innovative thinking of a practical futurologist. With Prof Reddy, the future is never boring, for he is forever probing its possibilities. We are thankful that he has refused to be limited by the confines of reality, only by the reach of his dreams.

Mr Pro-Chancellor, on behalf of the Council of the Hong Kong University of Science and Technology, I have the high honor of presenting to you Prof Raj Reddy, University Professor of Computer Science and Robotics in the School of Computer Science at Carnegie Mellon University, for the award of Doctor of Engineering *honoris causa*.