

Editorial

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Computers and computation have played a major role in science, technology, industries, commerce, and daily life in the developed world since the PC revolution of the 1980's. Within less than a decade, this trend spread across the globe, including India. The speed of progress has been dizzying, especially for the older generation used to a stable environment where things did not change much over even five years. The often used phrase 'disruptive' well describes the impact of these changes, especially when one includes mobile communication technology.



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We are now warned to be ready for even more disruptive changes, which are already well under way. These are captured in two words – 'Big Data'. In this issue of *Resonance*, we present an article explaining in detail what big data exactly means. Appropriately, the back cover features Jim Gray, who laid some of the foundations of big data. A recipient of the prestigious Turing Award for computer science, Gray's work was rooted in the issues which face real-world implementation – a rare combination of theory and practice in an increasingly specialized world. We carry in this issue, an extensive account of his life and work, resonating the spirit of the times in which he lived. His vision is conveyed in his own words in the Classics section.

MRI and CT scans are now routinely used by doctors to peer into the human body. However, not many of us would know that the mathematical basis for both these techniques was laid out in two papers by an Indian scientist from Bangalore, G N Ramachandran. He is, of course, rightly famous for many other things (*Resonance*, Vol.6, No.10, 2001).

Thanks to the Chennai floods, one article on imaging the magnetism of electrons could not reach the November 2015 special issue on magnetic resonance. We carry the second part in this issue. Quantum physics, radio engineering, free radical chemistry, and computation have come together in the medical research laboratory to sniff out the extra oxygen that cancer cells steal from the blood supply of the host!

