

Priti Shankar (1947–2011)

Just before the advent of Deepavali, the festival of lights, the Department of Computer Science and Automation (CSA) at the Indian Institute of Science (IISc), Bangalore, lost one of its brightest stars – Priti Shankar. Over a career spanning almost half a century, she had made signal contributions to the teaching and research of compiler design, formal language theory and algorithmic coding theory.

Priti was born into a celebrated Goan family. Her father Innocencio Monteiro was a Brigadier in the Indian Army and her mother Sophia was a maths teacher. She was part of a deeply socially conscious family; her siblings included Vivek Monteiro – a theoretical physicist turned trade-union leader and low-cost science educator; Anjali Monteiro – a documentary film-maker and professor of media studies at the Tata Institute of Social Sciences, and Nandita de Souza – a Goa-based developmental and behavioural paediatrician.

Priti's birth coincided with that of the newly independent India, and she fully imbibed the pervasive spirit of freedom and blazed her own distinctive trail throughout her life. In an era where the few women in Indian science were largely confined to biological disciplines, she pursued mathematics and engineering; she was the first female electrical engineering graduate from the Indian Institute of Technology, Delhi. She completed her doctoral studies at the University of Maryland, returning soon after to the nascent School of Automation at IISc, and played a pivotal role in piloting it to a pre-eminent position in the country.

Her research contributions spanned both the theory and practice of computer science, an ability that can be laid claim to only by a select band of researchers. Her results on error correcting codes are characterized by deep and elegant mathematical insights, while her contributions in compiler design have been incorporated in high-performance computational tools. The lasting impact of Priti's work is reflected in her papers being cited by influential authors and featuring in the advanced graduate courses of leading international universities. For instance, Priti's foundational contribution in 1979

dealt with generalizing the Bose Chaudhuri–Hocquenghem (BCH) codes – which had hitherto been defined over finite fields – to be operational over Galois rings. This technique found application 15 years later in the award-winning paper on linearity of Kerdock and Preparata codes by Hammons *et al.*¹; her work was acknowledged by the authors to be among the starting points for their investigation.



Amongst her many contributions was the development of a theory for tree parsing that enabled the automatic generation of code generators from formal machine specifications in the form of regular tree grammars – this important result appeared in the prestigious journal *ACM TOPLAS* in 2000. She also co-edited with Y. N. Srikant the first handbook of compilers, published by the CRC Press in 2002.

In addition to being an accomplished researcher, Priti was an educator par excellence. She was an exemplary role model to her colleagues and students, maintaining uncompromising technical standards tempered with compassion and humanity. Several of the current faculty at CSA were fortunate to experience first-hand her brilliant and inspirational teaching, having been her students. Priti conceptualized, introduced and taught a rich portfolio of over 20 courses, exhibiting a remarkable flair for communicating complex concepts in an alluringly simple manner accessible to all categories of students. Overall, she mentored close to

30 research students and 100 ME projects.

Moreover, she also chaired the Departmental Curriculum Committee for several years, and served on the Institute's Senate Curriculum Committee. Institutional recognition of her teaching skills came through IISc awarding her the Jaya Jayant award for teaching excellence in 2007, and the Institute of Electrical and Electronics Engineers naming her a Distinguished Lecturer during 2006–2009. Priti also played a leadership role on the editorial board of *Resonance*, India's primary journal of science education. Even on the last day of her life, she insisted that her student, Rajesh Pillai, visit her home to obtain a signature on his PhD thesis submission form, and fulfilled an important official commitment.

Priti was a born nurturer – not only of students, but also of the environment around her. She was passionate about gardening; many of the flowering plants that now adorn the CSA quadrangle were gifted by her. Even during her last conversation with the CSA Chairman a week before her demise, although in great personal pain, she enquired about the health of the avocado sapling she had introduced three years ago.

Priti was an extraordinarily gentle humanitarian, generous to a fault, unfailingly polite and gracious to all, and warmly sympathetic and helpful to those in distress around her. Perhaps the most befitting epitaph for Priti Shankar is the quotation: 'A good teacher is like a candle – it consumes itself to light the way for others.'

1. Hammons Jr, A. R., Vijay Kumar, P., Calduhane, A. R., Sloane, N. J. A. and Solé, P., *IEEE Trans. Inform. Theor.*, 1994, **40**(2), 301–319.

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