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Partha Niyogi, Computer Science Professor, 1967-2010

October 8, 2010

University of Chicago Professor Partha Niyogi, who applied computation to the analysis of speech recognition, language evolution and data analysis, died Friday, Oct. 1, at his home in Chicago's Hyde Park neighborhood, of brain cancer. He was 43.

Niyogi, who was the Louis Block Professor in Computer Science and Statistics, leaves a deep personal and professional void among his friends and colleagues. "Partha was one of the most beloved and respected people in the department," said [John Goldsmith](http://experts.uchicago.edu/experts.php?id=374) (http://experts.uchicago.edu/experts.php?id=374), the Edward Carson Waller Distinguished Service Professor in Computer Science and Linguistics at UChicago.

[Ketan Mulmuley](http://www.cs.uchicago.edu/people/mulmuley) (http://www.cs.uchicago.edu/people/mulmuley), Professor in Computer Science at UChicago, was among many others who echoed those sentiments. "His passing away is a big loss to the field of artificial intelligence, this department, and to me as a friend," Mulmuley said.

Niyogi was known among his colleagues as a master of the mathematical and computational techniques that he applied to his specialty of machine cognition and learning. "But what distinguished him was that he was not content with the mastery over the techniques," Mulmuley said. "He also understood their limitations and tried to transcend them. Most importantly, he had a vision."

Colleagues remarked as well about Niyogi's wide-ranging intellectual interests, which he pursued with an equally broad, open mind. One of Niyogi's first doctoral students, [Mikhail Belkin](http://www.cse.ohio-state.edu/~mbelkin/) (http://www.cse.ohio-state.edu/~mbelkin/), PhD'03, learned this about his mentor-to-be early on.

Belkin, now an assistant professor of computer science and engineering at Ohio State University, met Niyogi in 2000, when both men were new to UChicago. Belkin sought out Niyogi after encountering a convoluted mathematical argument in a paper on pattern recognition.

"I asked him some questions about the paper, and even though the topic was new to him, he had put serious thought into it and we started regular meetings," Belkin said. "We made significant progress and developed a line of research stemming initially just from trying to understand that one paper and to simplify one derivation. I think this was typical of Partha, showing both his intellectual curiosity and his intuition for the serendipitous."

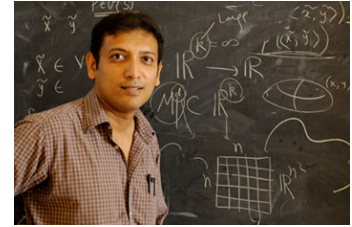
As a specialist in human and machine intelligence, much of Niyogi's work addressed problems related to language acquisition, a process of interest to linguists, psychologists and artificial intelligence researchers. He focused his research on learning and language to see how each works in humans and how they might be replicated in a machine. His ultimate goal was to build computer systems that could interact with and learn from humans.

In another major line of research, Niyogi made fundamental contributions to the field of data analysis. In this work, he developed geometrically based methods for inferring hidden patterns from complex data sets related to a variety of problems, including those in image recognition and analysis of spoken language.

Niyogi was the author or co-author of more than 90 research publications and sole author of two books: *The Informational Complexity of Learning: Perspectives on Neural Networks and Generative Grammar* (1998, Kluwer Academic Publishers) and *The Computational Nature of Language Learning and Evolution* (2006, MIT Press), which introduced a mathematical and computational framework for analyzing the interplay between language learning and language evolution.

Niyogi was born July 31, 1967, in Calcutta (Kolkata), India. As a child he lived in Bombay (Mumbai), where he developed a passionate interest in cricket.

He received his bachelor's degree in electrical engineering from the Indian Institute of Technology in New Delhi, India, in 1989. There, Niyogi already began demonstrating his wide-ranging interests, writing a thesis on the automatic recognition of beats on the tabla, a percussion instrument of northern India.



Partha Niyogi (*Dan Dry*)

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His undergraduate thesis then led him to the study of perception, recognition and learning, as well as acoustics, music and language. He earned his master's degree in 1992 and his doctorate in 1995 from the Massachusetts Institute of Technology, where he interacted with computer scientists, linguists and cognitive scientists more generally.

Niyogi married Parvati Krishnamurty in the Hindu temple in Ashland, Mass., on Nov. 24, 1995.

He served for a year as a postdoctoral fellow and research associate in MIT's Brain and Cognitive Science Department, and then joined the technical staff at Bell Laboratories in Murray Hill, N.J.

Niyogi joined the UChicago faculty in 2000 and was named the Louis Block Professor in Computer Science in 2009.

Surviving Niyogi are his wife, an economist at the National Opinion Research Center at UChicago; their twin sons, Nikhil and Kabir Niyogi; his parents, Ranjit and Prabhati Niyogi; and a brother, Siddhartha Niyogi.

A funeral was held at Lakeview Funeral Home in Chicago on Oct. 6. A memorial service will be held from 2 to 4 p.m. Saturday, Oct. 30, at Bond Chapel on the University campus. A reception will immediately follow in the Divinity School Commons Room. For more information, contact Katie Casey at 773-834-8977, caseyk@uchicago.edu (<mailto:caseyk@uchicago.edu>).

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