

SUMAN KUMAR NATH

An engineer aims to redefine mobile computing

BY AMITAVA KAR



Suman Kumar Nath

Suman Kumar Nath hasn't had a single role model throughout his life. People like him usually do. He went to the village primary school in Feni where he was born and dreamed of winning the government scholarship in class V or VIII and making it to the national merit list in the SSC or HSC exams.

Later on, while studying Computer Science and Engineering at BUET, he wanted to score record marks and become immensely successful in professional life like most BUET students do.

And he did—overdid it, to be more accurate.

"I graduated from BUET with a CGPA of 4.00/4.00, and I was the first person to do so," Nath says on email. Before that, he became first in the admission tests in BUET and "KA' unit in the University of Dhaka. After graduating from BUET in 1998, he briefly taught at BUET before going to the US and getting his MS and PhD in Computer Science from Carnegie Mellon University, USA in 2003 and 2005, respectively. Throughout his doctoral research he worked at IBM Research and Intel Research, Pittsburgh. His interest, however, was more than theoretical.

computing where we develop techniques to compensate for resource-constraints of mobile devices by executing computation on the cloud."

Researchers around the globe are working on making smartphones more energy-efficient by making batteries that last longer and can be charged faster. Is that what his research is about?

"In contrast our work focuses on how to efficiently use the available battery," Dr Suman says. "For example, the wireless networking component of the phone drains battery whenever it is in active mode. Battery can be saved by shutting down the wireless network when the phone doesn't need it. There are other tricks such as reducing the brightness of WebPages or apps and reducing the use of CPU and sensors without sacrificing user experience."

The computer science techniques that Dr Suman and his colleagues are developing are generic and can be applied to solve many problems in Bangladesh. "For instance, the power-efficient mobile phones we are working on can be used in rural areas where charging a phone may be a challenge. Big data analytics techniques can be used to extract, from locations reported by smartphones, real-time and

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"In my professional life now, I want to be like the researchers whose works have made significant impact in the area of computing and on people's life in general," he says.

And he is doing exactly that as a senior researcher at Microsoft Research where more than 1,000 brilliant scientists and engineers work day and night on more than 55 areas of computing including core areas such as operating systems and algorithms, and emerging fields like quantum computing.

"I work in the intersection of a number of related areas that have become very important in the last few years," Dr Nath says. "The first is mobile computing where my colleagues and I work on making mobile devices such as smartphone and smartglass energy-efficient and smarter. The second is big data analytics, where we develop algorithms to extract useful information from large, noisy data such as those generated by mobile devices. The third area is cloud

historical traffic map of roads in the Dhaka city, which will improve traffic management and reduce congestion."

The visionary researcher adds that cloud computing can help companies in Bangladesh lower their computer operating cost by pushing their data storage and computation to cloud providers who can efficiently consolidate many customers into a smaller number of remote servers.

Is it possible to conduct this kind of research in Bangladesh? "Computer science research, unlike many other science and engineering disciplines, do not need many resources in general... Collaboration is so much easier now, thanks to the Internet."

The top researcher is grateful to his Professor, Dr M Kaykobad from BUET, who inspired him "to do great things in life."

Suman Nath did not need a role model. He became one.