

## Reminiscences from the Past



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I was born into a highly educated family in Kolkata on a cold December afternoon, the only child of Dr. Maya Mitra and Dr. Girindra Nath Mitra. The doctor had wrongly pronounced me dead, even before I could see the light of the day. But, luckily for me, I survived.

My father was a scientist with the Indian Council of Agricultural Research (ICAR). My mother was a professor of Botany at Bethune College in Kolkata – a leading women’s college from where the first women graduates of the British Empire came out. Whatever I am today, be it in daily life or in the professional world, I owe it completely to my mother’s untiring sincere efforts, relentless sacrifice and careful grooming. She had been my “supermom”, adeptly managing both home and work with equal dexterity.

From her childhood my mother rebelled against the concept of preference for a male child that was prevalent in those days. She revolted against getting married at an early age and be burdened with loads of children, and desperately wanted to study. In spite of being forced to come to India as a refugee from Burma, during the Japanese bombing in 1942, she built her life from scratch. She had the ambition to finish college, and eventually obtained a Ph.D. in 1960 –also receiving the Agarkar gold medal of the Calcutta University in 1962, for her pioneering contribution to research in Botany. Both my parents also had the rare privilege of independently publishing in the reputed journal *Nature*! This was amazing and awe-inspiring, particularly for a woman of those times. Setting aside such a promising research career, she decided to marry and raise a family.

After all women are always expected to have first priority towards their family obligations, in this patriarchal world, and second comes their professional interests. It is pretty difficult for a woman to concentrate with devotion to her studies, once she starts family. While many men continue to be cared of by housewives, after their mothers, professional women cannot afford this luxury! Therefore one has to arrive at an offset, between work and home. It is how one can optimally achieve this balance, and upon how much it matches one’s objectives in life, that leads to satisfaction or happiness.

I was the daughter of a working mother. In the late 1960’s to the early 1970’s, when I was still a kid, the concept of working women was not that prevalent. Most of my friends returned from school to homemaker moms. But that never made me unhappy, as she always made up by spending quality time with me. With her encouragement and support, I grew up in a healthy educational environment. My

father's career at ICAR meant that he spent much of his working life outside Kolkata, in Shillong, Cuttack, and Hyderabad. Under this circumstance, my mother took care of my education as well as all other needs. I was proud that *ma* was a professor in a college, that she took me along with her in the numerous botanical excursions which she organized for her students, that I could visit so many places to meet and see so many interesting people and things, that she brought me plenty of exciting gifts, that she could look after my studies, and most importantly that she could still shower unlimited affection in the times that she spent with me.

Our surroundings were still quite green, with the nearby *Tallah* park being full of different kinds of trees, bushes and flowers, along with a beautiful lake. It was so enchanting that it made me imagine Rip Van Winkle lay sleeping under some bush in some hidden corner. But I never managed to locate him, no matter how hard I strived. There was a transmission tower with a red star-like light twinkling at its top. *Ma* said it was from the radio station of Calcutta. I imagined people sitting there and speaking whatever we heard on the radio. Television was yet to arrive in India and we had wired antenna at home to receive the transmissions into our valve-based radio. Soon darkness used to descend, with throngs of fireflies flickering in all directions. The park transformed into a fairy land. Where, oh where, have those fireflies gone? Have they disappeared with my childhood? They have taken my innocent dreams with them. Urbanization has taken its toll. Today the greenery is depleted. No more do children have time for such small pleasures of life.

Every Thursday our school was closed, and there was nobody at home under whose care I could be entrusted. So that was the day I carried my work to Bethune College with my mother. Although I never officially studied in either Bethune school or the college, yet I practically grew up over there. I still recall with pleasure how I enjoyed my lazy afternoons amidst the lush natural greenery within the campus, exploring new plants, flowers and butterflies, while she attended to her responsibilities in her office. To a city-bred kid, confined to the concrete jungle, these small pleasures were like whiffs of fresh air. I trundled across the vast expanses of the college playground on my first bicycle. Incidentally the garden was under my mother's care, and she knew each and every tree round the campus. There were also the laboratories of the Botany, Zoology and Chemistry departments, which held out their wonders before my amazed eyes. Needless to admit, I was an obedient child who never gave her any reason to be dissatisfied with my behavior.

*Baba* got deputed to the International Rice Research Institute (IRRI) in *Manila*, The Philippines, for a year. *Ma* arranged for her six-month leave in college, met the Principal of my school regarding my forthcoming absence, and then both of us traveled to join my father. Sister Elizabeth (the Principal) had marked out my lessons for *ma* so that my studies would not get disrupted during our stay. In those times such trips were rare for Indian kids like me.

Our cottage was surrounded by gardens, at places unkempt. The landlady had ten kids. They stayed in an adjacent house. There were butterflies of different shapes, shades and hues, with multifarious beautiful designs on their wings, flitting about. My friend Bobby and I built huts thatched by dry palm leaves collected from the garden. In the evening Bobby said "Let us go and watch TV". I was a full eight years old from an urban English-medium school, but I had never heard the word "TV" in India. I assumed "watch TV" could be some game. So I followed my friend to a Filipino house where we soon squatted in front of a mini-cinema emanating from a box. The show involved "Popeye the Sailorman". This was my introduction to television which I later learned to identify.

Time flew by and I entered high school. I always had good grades and caused no worries anywhere. *Ma* located announcements regarding the National Talent Search Examination, conducted by the National

Council for Educational Research & Training (NCERT). In those days online internet service was yet to arrive, and one had to solely depend on newspapers for any information followed by the subsequent physical collection of relevant forms and brochures. Eventually I was awarded the NTS scholarship. I passed ICSE and ISC from Auxilium Convent School and Calcutta Girls' High School, respectively, topping my class. I had great friends, with some of whom I am still in touch. And, surprisingly, most of them are successful in life today – in their independent professions. Perhaps, this is because the parents who sent their daughters to English-medium schools those days were illuminated enough not to discriminate between boys and girls in terms of their career.

Thereafter I joined Presidency College to study Physics Honours. The magnificent staircase, along which the luminaries of Bengal had once ascended, held me awestruck. Here I had the privilege of studying under stalwarts like Prof. Amal Raychaudhuri and Prof. Shyamal Sengupta. My father suddenly passed away at the age of 53 years, due to cerebral haemorrhage, and the entire responsibility of the family shifted on to my mother. ICAR offered me a clerical job as I was still an undergraduate. So I declined the offer to continue with my studies. *Baba* could not live to see me even become a graduate.

As far as my education was concerned, *ma* had always been happy and deeply satisfied. It was she who provided me expert guidance and help in organizing my flow in the right direction. She had searched out the upcoming field of computers as a possible place to explore. I secured admission to B. Tech. in Computer Science of University of Calcutta. Incidentally I had also cleared the admission test for the Integrated five-year M. E. course of Indian Institute of Science. However since it was just a couple of years that *baba* had died, I was unable to leave my mother and go. In Rajabazar Science College I met the renowned Prof. Arun Choudhury. It was he who made us understand the nuances of electrical circuits, with the voltage drops and current flows at complicated junctions. In class we were always wary of being made to go to the blackboard and calculate the potential difference between specified points.

After ranking first in B. Tech., I cleared GATE to gain admission to M.Tech. in IIT Kharagpur. I went and took admission, also visited the hostel, and eventually searched out an excuse not to go – as I felt homesick. So back I went for M.Tech. in the University of Calcutta, where again I ranked first. Around the time of my project dissertation I came across an advertisement on our notice board regarding a project assistantship at Indian Statistical Institute under Dr. Sankar K. Pal. Many people discouraged me from applying, saying that the topic was pattern recognition and hence not related to computer science. It was Dr. Samar Sensarma, a classmate of *Sankarda*, who insisted that I join the project. So I came to ISI and met *Sankarda*, who asked me several questions related to my family and financial background. He was trying to ensure that if I joined I should not discontinue before completing my Ph.D. Of course this was never an issue with me since both my parents were already Ph.Ds. That was 1988 and the first time that I set foot in the hallowed corridors of ISI. Thereafter, I left my GATE fellowship to join in the project.

I started working for my Ph.D. in Neuro-Fuzzy Pattern Recognition, with a CSIR Senior Research Fellowship under the supervision of Prof. Sankar K. Pal in 1989. After my mother, he has been the next great source of inspiration in my career. He has mentored me in my professional life, and been a guardian throughout. He has always allowed me complete freedom in going about my research in a fully independent manner.

Over my entire academic career so far, in spite of gaining admission in elite educational institutions outside Kolkata, I had never been able to leave home. This was mainly because of my homesickness

related to the recent sudden demise of *baba*, the extremely small size of our family, and my very special relationship with *ma*. When I was eventually selected for a DAAD fellowship in 1992, for working with Prof. H. –J. Zimmermann, even my teachers (including Sankarda) were skeptical as to whether I would at all be able to spend the scheduled period in Germany. At this stage my mother intervened, warning me that if I dared to return before completing my work then I would be sent out straight away. So off I went, the first time away from home and all by myself to a foreign land. I was at the RWTH Aachen University in Germany (the largest technical University in Europe). And sure it was a wonderful learning experience, both academically and otherwise.

I completed my Ph. D. in Computer Science from the ISI in 1995. I have been working there since 1991, publishing extensively in reputed international journals, including IEEE, and rising up the academic ladder to the level of a full Professor. My research, on neuro-fuzzy computing and its generic hybridization with other soft computing paradigms, has been internationally acclaimed. I received the IEEE Neural Networks Council Outstanding Paper Award in 1994 for my pioneering work in this direction. One of the examiners of my Ph.D. thesis suggested its publication as an authored book. I have written several books – Neuro Fuzzy Pattern Recognition: Methods in Soft Computing; Data Mining: Multimedia, Soft Computing, and Bioinformatics, both published by John Wiley; and Introduction to Machine Learning and Bioinformatics, published by Taylor & Francis – beside a host of other edited books. My research also resulted in several fellowships – including those of the IEEE, INAE and NASI. I am associated with the editorial activity of several international journals, and have chaired many international conferences.

Often *ma* used to inspire me to explore possibilities in a direction involving a fusion of her subject Botany with the Informatics of mine. And I am amazed and glad today, standing in the twenty first century, to realize that this is just what I am doing in the integration called Bioinformatics. I only wish she were beside me now to share the joys in my professional domain.

*Ma* retired from Bethune College in March 1995, after thirty seven long years of sincere, relentless service towards education. A lovely daughter was born to me in October 1995. I had my Ph.D. viva just one month after that. I had married someone, who I believed had “loved” me for around 18 years. But he ran away with the dancer wife of somebody else, leaving my 7 months old daughter for me to bring up alone – despite the fact that I had made a significant contribution as his ladder to progress both academically and financially.

The logistic support provided by my mother helped relieve a lot of the burden of childrearing and allowed me to concentrate further on my research. It provided important emotional support to my daughter as well. Whatever *ma* had been forced to forego in her own academic career after marriage, in her effort to concentrate on her family and on me her child – she wished to see those fulfilled in my professional life. And hopefully I did not fail her.

Now that I was established in life, I often needed to go here and there on academic assignments. *Ma* wished to accompany me in most cases, not only because she loved to travel but also since she wanted to be by my side wherever I went round the world. Therefore during most of my national as well as international academic visits, I strived to bring my close-knit family along. As a result we managed to travel together to a number of exotic destinations around the world, and in the process had the opportunity of accumulating and adapting to amazingly interesting experiences. We got to know so many wonderful people from different countries and cultures, having different customs, cuisines, and observing different ways of life. I have travelled to most parts of the world, often on lecture tours as well as on visiting professorship and collaborative research assignments.

My mother passed away almost suddenly in the summer of 2006. A part of me perished with her.

Today I have several students, many of whom are established as faculty of reputed institutes. My students form my extended family – a trait I have imbibed from my mother. My daughter has grown up, and is studying B. Tech. in Kolkata. Often I go around the world, and am presently serving as an IEEE Distinguished Lecturer. My research interests include natural computing, data mining, bioinformatics, medical imaging, and pattern recognition. The institute provides me full freedom in doing whatever I like with respect to my research.

I have not faced gender discrimination in any phase of my education and/or professional career. Wherever I went, I have always been a vocal proponent for women's cause. My mother has been a powerful influence in my life in this direction. She had *dared* to think differently. It was because of women like her, who walked before us, that we are able to achieve what we want with relative ease. Today I strive to imbibe in my daughter a similar conviction.

Life encompasses three major lotteries. You cannot choose your parents. You think you optimally select your spouse – but often this turns out to be an illusion. You can neither choose your children. Those who are successful in life try to make the best use of these attributes. Those who are not-so-successful complain. As the shadow of my life grows longer, I feel happy with whatever I have received – for, when you want nothing you begin to have everything.