



Dr. Anasuya Devi

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Prof. Anasuya Devi who developed software technology for reading epigraphy texts, ancient artefacts and palm scripts of our country started her career as a Sanskrit lecturer at Maharani's College and BES College of Arts, Science and Commerce, Bangalore. She was also carrying out research in language processing systems and information processing while teaching. She came across an article titled "Relative Efficiencies of Indian Languages" in the prestigious journal Nature, authored by Prof. B.S. Ramakrishna, ECE department of the Indian Institute of Science. He was a pioneer who initiated interdisciplinary research combining computers and linguistics, especially Indian

languages and paved the way for digitisation and decoding of manuscripts and archaeological artefacts of our country and across the world. Anusuya disagreed with the claim in that research publication, that Telugu was a more efficient language for communication than other Indian languages.

Believing that Sanskrit is the mother of all Indian languages, she thought it should be considered a more efficient language. So, in 1974, she walked into IISc to make her arguments against the article, by confronting the author. This episode indeed brings forth the conviction and fearless attitude of this young woman in her work, as well as the open mindedness



of a great researcher. She met Ramakrishna who looked simple and nice. Soon, she began arguing with him on the subject. Amazed by her arguments, he asked, "You are right, but can you prove it? Do you know information theory?" She was perplexed. Eventually, he put her through a test in mathematics, which she cleared successfully. That is how Ms. Anusuya came under his tutelage.

The Foreign Languages Section (FLS), a newly formed division of IISc was looking for a person with a background in mathematics, sciences, computers and Sanskrit to work on translation and bilingual studies on syntactic patterns in widely divergent languages. With the kind of versatile background in all these subjects, curiosity to explore and willingness to pursue research in a very new dimension, Anasuya quit her job and joined this project after passing an interview. She describes Prof. Ramakrishna thus: "Being a wonderful teacher, he simplified complicated topics such as stochastic process, probability theory and semantic measurements." In a few years, when this project came to an end, she wrote an entrance examination to do Ph.D. there. She topped the

list and pursued interdisciplinary research involving the two distinct departments - FLS and ECE at IISc which she calls the "Almighty".

It must have been a very unique experience blending different domains - language, electrical engineering and computer science. "Why not study literary prose style as a problem in the patterns of human communication just as engineering people study fingerprints or handwritings or aerial surveys?" was the thought lingering in her mind! That was probably the first time someone had seen a fascinating analogy and tried to pursue further.

Combining communication theory, pattern recognition theory and all such esoteric theories was not easy! She had to move from one expert to another learning their magic art, understanding each of their course of work. "When you are a novice not used to thinking originally, or even not trained for that matter, like I was - but get an occasional input, your spirit soars high and your jubilation knows no bounds, until you discover to your utter dismay that someone else had already claimed your thoughts. After I had gone through a few

such elations and depressions, I was prepared to draw the inevitable conclusion that research was not for me."

A thesis adviser also acted as her spiritual guru who could help her see. She avers, "Such discoveries should strengthen your conviction that you are on the right track and that you can make the right kind of observations, never mind whether it is for the first time or not. Rediscovery is a prelude to discovery." She was able to proceed regaining confidence.

Prof. Satish Dhawan, the then Director of IISc used to mention that the institute needed a department where research work of interdisciplinary nature can be carried out - be it humanities or social sciences, but combine scientific methods of the chosen social problems in specific areas. He felt that such research will have direct impact on the society. With his own interest and a degree in English literature, he urged Anasuya to develop hardware for style of writing similar to speech-recognition system (VOCODER) similar to one developed at Bell Labs. To accomplish this, she was asked to do a few advanced courses at the Central Institute of English and Foreign Languages, Hyderabad. It was important in the study of computational linguistics and also to conduct the experiment on "The perception of style".

Anasuya Devi dived into a very niche direction exploring if science and art could be married. Her thesis topic was "Literary prose style: a communication theory point of view". The moral support for this unification of science and art had come from Rangaswamy Narasimhan, the architect of



our country's first indigenous computer TIFRAC. Due to the complexity and special nature of her work, there was a delay in her thesis submission. Nothing deterred her. "I spent three years on coursework, both at IISc and elsewhere. Obtaining an extension proved to be difficult. To help me, G Clairon, the then Chairperson of the Foreign Languages Section, and PS Narayanan, the then Divisional Chairman of Physical and Mathematical Sciences, reviewed the issue and extended time for thesis submission. Clairon, in fact, volunteered to pay her thesis fees, since she was a unique student of both FLS and ECE!

In later years, she spread wings in research areas encompassing natural language processing, soft computing methods, remote-sensing applications, GIS, epigraphy, archaeology, classical sciences, computers and Indian languages. "The Ph.D. training itself building my personality as multi-faceted and gave strength for endurance in different walks of life", she recalled

later in her memoir. Her techniques to understand the pre-processed archaeological images are still referred to by researchers across the globe.

After her post doc, Dr. Anasuya Devi joined the electrical engineering department at IISc. Even in those days, it was a pioneer in the subjects concerning image processing, computer vision, pattern recognition and artificial intelligence. She applied her knowledge on these to document the diverse nature of agricultural lands in our country. As a visiting scientist at the National Remote Sensing Agency (NRSA), Hyderabad, she went to build an expert system for analysing soil taxonomy, geology and geomorphology. She was also teaching courses on remote sensing, GIS, drought watch management system, AI and classical sciences at multiple institutions.

With the encouragement from the great scientist Dr. Raja Ramanna, Prof. H.K. Anasuya Devi went on to deciphering such relevant texts in



ancient sciences of our Bharath. He wanted her to build software that interprets human expertise based on decipherment using various scripts, an area concerning both archaeology and epigraphy, involving documentation and analysis of ancient texts. At the National Institute of Advanced Studies, NIAS (in 1995), she plunged into developing an expert system to study inscriptions written on stones, seals, palm leaves, coins, silver plates, copper plates etc., from the earliest civilisation through the present day, their interpretation and classification. J.R.D. Tata admired her work and research interests in inter-disciplinary areas which would bring classical sciences, humanities, anthropology, archaeology and epigraphy to the forefront.

She has lived a fullest academic life as a researcher, teacher, who was very involved in students' life; instrumental in getting a new women's hostel built and initiating swimming lessons for women students, spreading live language learning through *Sanskrita Sangha*, re-instating a few scholarships all the while sharing her knowledge in interdisciplinary research field.

