A Life Inspired by Teachers, Students and Peers

Ganti Prasad Rao

I was born in Seethanagaram, Andhra Pradesh, Indiaand went to schools in Parvatipuram, Bobbili and Sompeta in the then Srikakulam District of Andhra Pradesh and studied Pre-University Course in Maharajah's College, Vizianagaram. In Maharjah's college, the Principal Sri VasantaraoVenkatarao took keen interest in me and gave much encouragement. Thereafter I studied at the College of Engineering, Kakinada and received the B.E. degree in Electrical Engineering from Andhra University, in 1963. I received the M.Tech. (Control Systems Engineering) and Ph.D. degrees in Electrical Engineering in 1965 and 1970 respectively, both from the Indian Institute of Technology (IIT), Kharagpur. Thanks to my teachers and fellow students, in spite of severe financial challenges I could continue with my higher education. I believe that the inspiration, love and encouragement I received from my teachers, colleagues, students, and collaborators worldwide, gave me great strength in facing the many challenges in my professional life.

In 1969 I started as Assistant Professor in the Department of Electrical Engineering, PSG College of Technology, Coimbatore. During 1969-71 Professor G.R. Damodaran took me nto his close circles and entrusted me the task of National Survey in connection with the Damodaran Committee's work on Reorganization of Polytechnic Education in the country. The method independently developed and used by Prof. Rao to compile the nationwide non-numerical response in the survey reflected the shades of fuzzy sets which were introduced by Professor L.A Zadeh in 1965. I later became a member of International Advisory Bodies with Prof. Zadeh. In 1971 I moved to the Department of Electrical Engineering, IIT Kharagpur. At IITKharagpur, during 1978-1980, I was the Chairman of the Curriculum Development Cell (Electrical Engineering) established by the Government of India. From October 1975 to July 1976, I was with the Control Systems Centre, University of Manchester Institute of Science and Technology (UMIST), England, as a Commonwealth Postdoctoral Research Fellow. I visited the LehrstuhlfürElektrischeSteuerung und Regelung, Ruhr-Universität Bochum, Germany as a Research Fellow of the Alexander von Humboldt Foundation. I also visited the FraunhoferInstitutfürRechnerarchitectkur und Softwaretchnik (FIRST) Berlin, TU Ilmenau, TU Dresden, University Henri Poincare, Nancy, France, and Royal Society Visiting Professor at Brunel University, UK.

I was invited in 1990 to give advanced lectures in control to a cosmopolitan team of engineers in the Water and Electricity Department (WED), Govt. of Abu Dhabi and to guide their research in modeling and simulation of Desalination Plants. I joined this team on invitation, as Scientific Advisor to the Directorate of Power and Desalination Plants, WED, and the International Foundation for Water Science

and Technology (IFFWASAT) and worked in modeling, simulation and control of desalination plants. In this period the team developed mathematical models for large scale Multi stage Flash Desalination plants and came up with adaptive control strategies for the control of these plants under varying conditions. IFFWASAT established the 'Systems and Information Laboratory' in the Electrical Engineering Department at the Indian Institute of Technology, Kharagpur, in recognition of my work.I was also associated with the Global Project of Encyclopedia of Life Support systems (EOLSS) as Member of the UNESCO-EOLSS Joint Committee since its inception.

I authored/coauthored four books: Piecewise Constant Orthogonal Functions And Their Applications to Systems and Control, Identification of Continuous Dynamical Systems- The Poisson Moment Functional (PMF) Approach (with D.C. Saha) ,Generalised Hybrid Orthogonal Functions and their Applications in Systems and Control (with A. Patra) (published by Springer) and Identification of Continuous Systems (with H. Unbehauen) (Published by North Holland). I am the Co-Editor (with N.K. Sinha) of Identification of Continuous Systems - Methodology and Computer Implementation, (Published by Kluwer). I also authored/coauthored over 150 research papers. My paper "Identification of Continuous-time Systems", published in IET (Former IEE) Control Theory and Applications, ranked among the top full text downloaded papers in 2008.

I was on the Editorial Boards of ENCYCLOPEDIA OF DESALINATION AND WATER RESOURCES, International Journal of Modeling and Simulation, Control Theory and Advanced Technology (C-TAT), Systems Science (Poland), Systems Analysis Modeling and Simulation (SAMS), International Journal of Advances in Systems Science and Applications (IJASSA) and The Students' Journal of IETE (India). I am on the Honorary Editorial Advisory Boards of UNESCO-EOLSS Joint Committee of Encyclopedia of Life Support Systems. I was a member of the IFAC Technical Committee on Modelling, Identification and Signal Processing in 1996. He was Chairman of the Technical Committee of the 1989 National Systems Conference in India. I am the co-editor (with AchimSydow) of the book series "Numerical Insights Series" published by Taylor and Francis. I am a member of the International Advisory Boards of Member of the International Institute of General Systems Science (IGSS), Systems Science (Poland) and International Congresses of World Organisation of Systems and Cybernetics (WOSC). I visited the USSR Academy of Sciences, Institute of Control Sciences in 1991 as a one man special delegation from INSA where I interacted with some distinguished Soviet scientists. Since 1996, I am closely associated with the development, from concept to completion, of the Encyclopedia of Desalination and Water Resources (DESWARE) and Encyclopedia of Life Support Systems (EOLSS), developed under the auspices of the UNESCO.

I received several academic awards including the IIT Kharagpur Silver Jubilee Research Award 1985, The Systems Society of India Award 1989, International Desalination Association Best Paper Award 1995 and Honorary Professorship of the East China University of Science and Technology, Shanghai.

I was elected to the Fellowship of the IEEE with the citation ' FOR DEVELOPMENT OF CONTINUOUS TIME IDENTIFICATION TECHNIQUES', and I am now Life Fellow of IEEE. The techniques pioneered and developed by me are now incorporated in the Matlab compatible CONTSID Toolbox that was developed by the Henri Poincare University in Nancy, France.

In the initial years of my research, my choice of continuous-time models in system identification as the main posed a great challenge as I was pitted against the vast global activity with discrete time models, in the 'go completely digital' spree of research. In this critical period the faith my colleagues and students had in his effort was a great support to push me forward. I am Life Fellow of The Institution of Engineers (India), Life Member Systems Society of India, Indian Society for Technical Education, Fellow of The Institution of Electronics and Telecommunication Engineers (India), Life Fellow of IEEE (USA) and a Fellow of the Indian National Academy of Engineering.

Over the last several years, I have been traveling widely upon invitations to give lectures on sustainability concepts and the Indian heritage to the world of mathematics. My lectures on how the Hindu concept of Zero and number systems prepared the mind-set of mathematicians world-wide, and influenced the development of a host of modern mathematical concepts.