

## Mirko Milić

An extraordinary scientist, researcher, professor, and art aficionado, Professor Mirko Milić, had two main passions in his life: passion to science and passion to travel. Last days of his life he passed enjoying his two passions: he was in Davos (Switzerland), far from his home in Belgrade (Yugoslavia), sharing experiences and ideas with his colleagues, scientists from all over the world, at the European Conference on Circuit Theory and Design (ECCTD). After the conference, he spent some time in Switzerland, and suddenly died in Bern on September 9<sup>th</sup>, 1993.

Professor Mirko Milić was born in Galace, Romania, on April 21<sup>rd</sup>, 1932 as the only child of a respectable middle-class family. His father, originally from Dubrovnik (Croatia), worked as a professional ship-pilot in Galace, a small town at the Danube-river delta. His mother was a fine lady of Italian and Austrian origin. She influenced her son Mirko to be interested in the fine arts, music, and mathematics, and provided him with a fine education in a classical lycée. From that time, Mirko Milić exhibited a strong and deep interest for art, music, languages, and philosophy.

Mirko Milić graduated from high school in Belgrade, in 1950, with the highest honors. He continued his studies at the Faculty of Electrical Engineering (EE), University of Belgrade. He graduated (B.Sc.) in 1956, with excellent grades (grade point average 9.43 out of 10.00) from the Department of Telecommunications. In 1963, he received the M.Sc. degree in EE with a diploma work entitled “*The Application of Graph Theory to the Analysis of Electrical Networks with Multi-Terminal Elements.*” In 1968, he received the Ph.D. degree in EE for his dissertation entitled “*Topological dynamic Properties of State-Space Model of Non-Reciprocal Networks.*”

As an undergraduate student, Mirko Milić worked part time in the Research Institute Vinca (Belgrade). After receiving the B.Sc. degree (1956) at the Faculty of EE, University of Belgrade, he assumed the academic positions of teaching assistant, assistant professor (1963), associate professor (1973), and full professor (1980). His main research subject was circuit theory. From 1961 to 1965, he was a researcher-consultant at the Institute “*Nikola Tesla*” and the Mathematical Institute, both in Belgrade. From 1965-1967, he was on a British Council Scholarship at the Imperial College of Science and Technology, London (UK). In 1977, he was invited as a visiting professor-researcher to the University of California, Berkeley (USA). In 1988, he was elected to be a corresponding member of the Serbian Academy of Sciences and Arts.

Professor Milić was an extraordinary and passionate scientist. His work, encompassing a broad spectrum of circuit theory, was undoubtedly well recognized and respected internationally. His comments, discussions, and reviews were profound, clear, and extremely valuable to his colleagues. He contributed to several areas of fundamental circuit and system theory. The main characteristic of his research was “*to be at least one step before others.*” He was one of the pioneers in the foundation of spectral graph theory, having also published a textbook (with Prof. D. Cvetković) in this field. His papers cover a variety of areas, including topological dynamic properties of passive and active networks, statespace descriptions of linear and nonlinear networks, qualitative analysis and bounds of the solutions of semistate models, Lagrangian descriptions of nonlinear networks, numerical analysis, modeling, and signal processing. During the



last years of his life, he was interested in neural networks, particularly cellular neural networks (CNN) where he suggested a novel CNN cell having only one active element. Among others, his result concerning unique solvability of linear time-invariant RLC circuits has proved to be one of the deepest results in circuit theory. Two textbooks, two solution manuals with solved problems in circuit theory, and numerous scientific papers published in international journals and conference proceedings have marked the productive period of Professor Milić's life.

Many people knew Professor Milić as a pure and precise theoretician. It is, hence, interesting that he had a patent submission entitled "Analog  $n$ th order filter suitable for integrated technology." Furthermore, although he preferred exact solutions in closed form over the numerical solutions, he recognized an importance of computer applications and in 1970s took a course in computer program ECAP and a course in computer-aided design of electronic circuits.

Professor Milić was an active member of several international and Yugoslav societies and committees, and chairman and member of a number of conference committees (ISCAS, ISTET, ECCTD). He was a corresponding member of the Serbian Academy of Sciences and Arts, a permanent member of the Scientific Committee of the International Symposia of Theoretical Electrical Engineering (ISTET) and the Information Committee of SEFI (Société Européenne pour la Formation des Ingénieurs), a senior member of the IEEE (Institute of Electrical and Electronics Engineers), and a member of the Yugoslav Society for ETRAN (Electronics, Telecommunications, Computers, Automation, and Nuclear Engineering).

With several colleagues from the Faculty of EE, University of Belgrade, he initiated the first Seminar on Neurocomputing, held from December 20-21, 1990 in Belgrade. He helped the seminar series continue, despite the disintegration of the former Yugoslavia.

During the Winter 1992-93, at the time of enormous inflation in Serbia and Montenegro, he organized the second Seminar on Neural Networks as a series of lectures held on Saturdays from November 1992 to May 1993. The seminars now continue as the biennial international conferences on Neural Network Applications in Electrical Engineering (NEUREL). In co-operation with the IEEE SP Society, NEUREL is organized by the IEEE YU Section and the CAS & SP Chapter, and it hosts authors from all over the world. The next NEUREL, scheduled for September 2004, is devoted to the memory of Professor Mirko Milić.

Professor Milić was a passionate scientist and teacher always ready to explore new research fields. When working, he never spared himself nor anyone else working with him. He loved his work, both teaching and research, and always had numerous new ideas and plans. Even though his sudden death prevented him from completing many of his projects, Professor Milić made numerous scientific contributions. He was an academic who left an exceptional mark on engineering science.

He made a clear distinction between his professional and private lives. Consequently, few of his colleagues knew him as an extraordinary expert in philosophy, arts, music, and as a jazz aficionado. His illness, which he fought over a long period of time, was perhaps the reason that he worked even harder, as though he wanted to be "*just one step ahead of the ultimate destiny that awaits us all.*"

Based upon 'In Memoriam' article in IEEE CAS Magazine, 2003, by Ljiljana Trajković and Branimir Reljin.

*Ljiljana Trajković*  
Simon Fraser University, British Columbia, Canada