



## *IN MEMORIAM*

### **S. Louis Hakimi**

**Professor of Electrical Engineering and Computer Science Emeritus  
UC Davis  
1933 – 2006**

Seifollah Louis Hakimi, Professor of Electrical Engineering and Computer Science Emeritus at the University of California at Davis, passed away peacefully at his home in El Macero on June 23, 2006 after a lengthy battle with prostate cancer. He was 73.

Lou was born December 16, 1932 in Meshad, Iran, in a beautiful mountainous region of that country. Lou's parents – particularly his father - were devoutly Jewish, and raising their family in a predominantly Islamic country involved many challenges - and much secrecy. Although Lou came to the United States in the early 50's, his siblings remained in Iran until the Shah fell to the Islamic Revolution in 1979, at which point they fled Iran and settled in the New York area. Except for brief visits to see their children, however, Lou's parents never left Iran.

Lou received his primary and secondary education in Iran, and manifested early on a talent and affinity for mathematics. In his late teens, Lou emigrated to the United States to complete his formal education. He attended the University of Illinois at Urbana - Champaign, completing a B.S. in 1955 and a Ph.D. (under Mac Van Valkenburg) in 1959, both in electrical engineering. Upon completion of his doctorate, Lou was offered an appointment as an Assistant Professor of Electrical Engineering at Illinois, a position he held for two years. In 1961, he left Illinois to join the faculty at Northwestern University in Evanston, Illinois as an Associate Professor of Electrical Engineering. He was promoted to Full Professor in 1966, and chaired the Department from 1972 until 1977. From 1977 until 1986, he was a Full Professor at Northwestern holding joint appointments in Electrical Engineering / Computer Science, Industrial Engineering / Management Science, and Applied Mathematics.

In 1986, Lou heeded Horace Greeley's advice to 'go west', and joined the faculty of the University of California at Davis as Full Professor and Chair of the EECS Department. He led the EECS Department for 10 years until 1996, and retired from UC Davis in 2001. Lou joined UC Davis during a period of rapid growth for the College of Engineering and

the Campus as a whole, and under his energetic leadership, the size of the Department of Electrical and Computer Engineering doubled during his tenure. After retiring, he lived in El Macero in the home he had built when he came to California.

Lou had a wide range of research interests, and made significant contributions in graph theory, combinatorics, networks, coding theory, circuits, and complexity theory. The result for which he is best known is undoubtedly the Havel-Hakimi theorem in graph theory: In 1962, Lou independently discovered a 1955 result of V. Havel which gave a constructive characterization of the degree sequences of undirected graphs. This fundamental procedure, which either constructs an undirected graphical realization of an integer sequence, or proves that no such realization could exist, appears in virtually every graph theory textbook. But several other of Lou's results are also worthy of note. In 1964, he wrote what is widely considered the seminal paper on the theory and analysis of optimal facility locations in networks, opening a research area which remains active 50 years later. In 1971, Lou and Leonid Levin (independently) formulated, for the first time, the Steiner tree problem in networks (find a tree of minimum total edge weight which connects a specified set of nodes in a network). No efficient algorithm for the problem is known; indeed, the problem is NP-complete, and widely thought to be algorithmically intractable. Then in 1995, Lou settled a longstanding conjecture of Noga Alon on graph coloring, by applying a well-known result in an highly original and completely unexpected way. Alon mentioned later that he was very impressed by Lou's solution. A hallmark of Lou's work was making fundamental connections that other researchers had missed entirely.

Lou was an excellent teacher at both the undergraduate and graduate level. He was a patient and encouraging mentor to his doctoral students, who invariably enjoyed working under him. He supervised over 15 Ph.D. theses at Northwestern and UC Davis, and has over 100 descendants listed in the AMS Math Genealogy Project.

When Lou came to UC Davis in 1986, it was for much more than the excellence of the EECS Department and the University, however. Lou absolutely loved Northern California. He enjoyed wine tasting with friends in Napa Valley, hiking in Yosemite, and driving along the steep, rugged coastline north of Bodega. There was certainly nothing like it near Evanston, and Lou never had a second thought about his decision to come west.

Lou enjoyed tennis, particularly when he was younger, but gravitated more to golf in his later years. He had a remarkably good swing for someone who had taken up golf so late in life. In matters of taste – music, art, clothing, and home furnishings – he was conservative to a fault. He had a deep love and extensive knowledge of classical music, especially the music of J. S. Bach, and owned an impressive collection of classical recordings. His home was filled with paintings by modern day impressionists.

Lou's family was easily the most important thing in his life. He and his wife (Mary) were married for over 40 years, and had three children (Alan, Carol, and Diane), each of whom made their parents justifiably proud. Lou lived to see two of his grandchildren (there are now six), and found immense joy in his times with them.

Edward Schmeichel, Bernard Levy and Andre Knoesen