

In memory of Professor Caro Lucas (1949-2010)

September 25, 2010

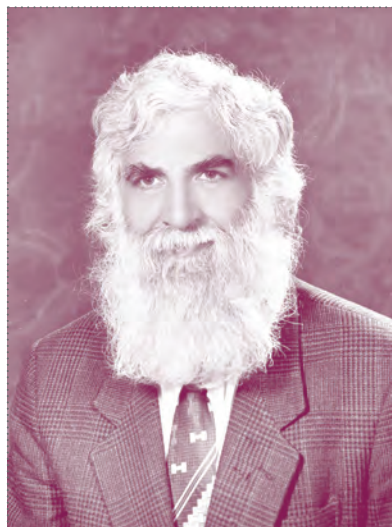
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In July 8th , 2010 the scientific community of Iran lost one its most celebrated Fig.s. Prof. Caro Lucas is not only remembered as a scientist and engineer, but also as a man with a great soul, who inspired the life of many of his students, colleagues, and friends.

Caro was born in September 5, 1949 in Isfahan during one of his family's regular summer trips to this beautiful historic city in central Iran. He grew up in Tehran. Coming from Armenian heritage, he attended the Kooshesh high school in Tehran. Caro graduated from University of Tehran with a MS degree in Control Engineering in 1973. He received his PhD in 1976 from University of California at Berkeley in Control Systems. His minor was Financial Economics, which remained one of his research areas throughout his life. Dr. Lucas was simply brilliant in his school years. Many of his teachers and friends from those days described him as a genius. In his reference letter to UC-Berkeley, Caro's advisor at University of Tehran recommended Caro as follows: "you are crazy if you do not accept Caro in your school". This is type of impression that Dr. Lucas put on many people around him.

Dr. Lucas had joined the School of Electrical and Computer Engineering, Faculty of Engineering, University of Tehran in 1976, where soon become a prominent academic Fig., and gradually emerged as an icon for the school. He remained at the same university throughout his career, and served the university at different capacities, which includes chairman of the ECE department (1986-1988).



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Returning to Iran to pursue an academic career was not a simple decision for most of the young scientists in Caro's Caliber. In 1976, he already was at Assistant Professor at UCLA. But he made it simple; and he never attributed his decision to altruism. Prof. Lucas was a true selfless man.

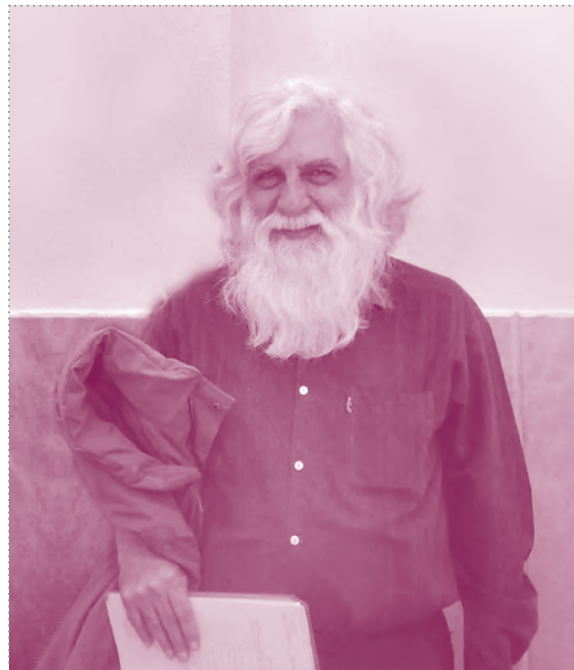
Prof. Lucas enjoyed international scientific collaborations in his entire career. He had visiting positions at different schools which includes: Assistant Professor at Departments of Electrical Engineering and Mechanical and Industrial Engineering, University of Garyounis, Benghazi, Libya (1984-1985); Visiting Associate Professor, Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, USA (1988-1989); Visiting Associate Professor, Department of Industrial Engineering, University of Toronto, Canada (Summer 1989 and Summer 1990); Visiting Associate Professor, Institute of Applied Mathematics, Chinese Academy of Sciences, Beijing, China (Summer 1991); Visiting Associate Professor, Harbin Institute of Electrical Technology, China (Summer 1992); Fellow, International Center for Genetic Engineering and Biotechnology, Trieste, Italy (September 1992); Visiting Professor, Yerevan Physics Institute, Armenia (Summer 1997); Guest Scientist, Institute of Data Processing and Electronics, Forschungszentrum Karlsruhe, Germany (Summer 2004); Lecturer at Winter School, University Staff Development Training of Trainers Program, Georg-August University of Göttingen, Germany (January 2007); Visiting Professor, American University of Armenia, Yerevan, Armenia (Summer 2007).

I would say that the main purpose in Caro's scientific life was to be the faithful advocate of research in academia. Prof. Lucas devoted his entire career to research; particularly to teach young students how to research. He made his lectures workshops for scientific research in his favorite subjects. Prof. Lucas often start his first lecture at each semester with clarifying the aim of the course to be doing a research together not transferring some knowledge to students' minds. One should evaluate Caro's impact as the messenger of research by looking at the days he started his career in late seventies and early eighties. By the time, Iran Universities were trying to restructure themselves, particularly after Iran's Islamic Revolution. Graduate studies, especially at PhD level, were very young. Many old members of the academia doubted that we can produce decent science and technology in our schools in Iran. Most of courses were thought to be old-fashioned, where students relied chiefly on Professors' handouts. In such an era Dr. Lucas started to teach his students how to read many text books instead of handouts, how to read scientific papers instead of text books, and how to rely on their own analytical and critical thinking. No surprise that many students consider Caro's lectures as the turning point of their scientific career; and no surprise that his courses, on whatever subject, used to attract up to one hundred graduate students, a Fig. which is several times above average number of students per class in graduate courses.

Dr. Lucas started his research career in system sciences and engineering, but during eighties he gradually shifted the focus of his research towards intelligent systems. He was among primary international researchers who realized the connection between neural networks, fuzzy logic, and genetic algorithms. As a result, he started an all around research program in these areas, which included teaching related advanced courses. I was privileged to attend his "Biological Computing" course as a graduate student in 1992. By the time, a course of the same title and content was very rare even at famous international universities. Perhaps, it could be considered an early start contributed to his enormous success in this

research path. Indeed, one of the unique qualifications of Prof. Lucas was his ability to anticipate fruitful future research paths. This was not the only time that he made the right decision in changing his research direction; honestly speaking as a genuine he was visionary and ahead of his time.

Gradually, during nineties and first decade of the twenty first century, Prof. Lucas added a new dimension to his activities: "fostering the intelligent systems research in Iran". He was instrumental in the process of re-establishing the IEEE Iran Section after the Islamic Revolution being its chairman from 1990 to 1992. Being an



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advisor to the Vice Minister of Culture and Higher Education of Iran (1995 -1998), Prof. Lucas was essential to the establishment of several intelligent systems related research centers in Iran. Particularly, Prof. Lucas is the founder of School of Intelligent Systems (now called School of Cognitive Sciences) at Institute for Research in Fundamental Sciences (IPM) in Tehran in where he was the director for four years(1994 – 1998). He was part of the committee that recognized, planned, and supported "center of excellences" in Iran universities. In recent years it was him who founded the Control and Intelligent Processing Center of Excellence at University of Tehran (2001-2005).

One of the highlights of Prof. Lucas career was his service to local, national, and international conferences. He believed in developing and supporting dialogue and collaboration among researchers. Hence, he was supportive of conferences as much as he could at any level. He brought the first big international control systems conference to Iran in 1990_ after the Islamic Revolution. As a matter of fact his role was pivotal in holding some conferences: Iranian Conference on Intelligent Systems, Iranian Conference on Fuzzy Systems, and Iranian-Armenian Workshop on Neural Networks. However, perhaps the most important contribution of Caro to the scientific gatherings came at the local level. As a charismatic lecturer, and as an icon of intelligent systems research in Iran, he was quick to accept invita-

tions to give talk in most remote parts of the country in local gatherings and small universities. No wonder Prof. Lucas is so popular among Iranian students since he devoted his life and unique qualifications to them.

One of the important features of Caro's scientific approach was his supreme ability to analyze almost everything at an abstract system level, and his ability to go back and forth between the model and the reality. That is why Dr. Lucas was able to teach "System Design" not only to Electrical and Computer Engineering students, but also to Management, Biology, Medicine, Geophysics, Industrial Engineering, Finance, and even Art students. His lectures were attended by an assembly of students from diverse disciplines. Prof. Lucas was indeed a multi-disciplinary scientist.

Prof. Lucas mentored many students during his many academic years. Many of them are university professors around the globe, and a lot of them consider Caro as the most inspiring person in their lives. As a teacher, what would you wish for yourself? Prof. Lucas is definitely blessed with the players of his numerous thankful students.

Dedicating many years for academic researches, Prof. Lucas won many awards: Election to the Iranian Science and Culture Hall of Fame (Lasting Figures in Science and Cultures), 2006; Election to the Iranian Society of Electrical and Electronic Engineers Hall of Fame, 2004; 17th Khwarizmi First Rank International Award for Fundamental Research, 2004; 9th Avicenna First Rank Exemplary Project Award, 2008; SCOPUS Outstanding Researcher of Iran Award, 2007; Organization of Islamic Conference Standing Committee on Scientific and Technological Cooperation Award for Outstanding Research, 2004; IEEE Region 8 Award, 2000; Decoration of Armenian Society of Engineers and Architects, 1999; Exemplary Professor Honored by the Faculty of Engineering and School of Electrical and Computer Engineering on the occasion of the 70th Anniversary of University of Tehran, 2004; Exemplary Professor by the Ministry of Culture and Higher Education, 1996; Exemplary Professor by University of Tehran, 1995 and 1993; Exemplary Researcher by University of Tehran, 2005 and 1991; and Exemplary Researcher by Ministry of Energy, 1991. He has been honored at many national and international conferences, including World Automation Congress, 2004. And last but not the least; he has been constantly honored by his numerous students in their self-organized and self-supported ceremonies to recognize his achievements as an outstanding teacher and researcher.

Prof. Caro Lucas is remembered for his dedication as a university professor, his enthusiasm for science, constant curiosity, brilliance as a researcher, achievements as an outstanding teacher, and ability to inspire many young scientists and students. Besides, his sweet smile is among those unforgettable things of his.

Allow me to finish my words with a message by Prof. Lotfi A. Zadeh, the father of fuzzy logic, on Caro's demise: "I shall add my voice to those who expressed their sadness at the passing away of Caro Lucas. It is a big loss for the Soft Computing community_ worldwide and, especially, in Iran. He was a prominent researcher, a dedicated educator and a person who was loved and admired by all who knew him. We all will miss him."