Colin Gerald Caro was born in Durban, South Africa on 3rd October 1925. After matriculating at Parktown Boys High School in Johannesburg in 1942, he began studying medicine at the University of the Witwatersrand, Johannesburg (Wits). He interrupted his studies at the end of 1944 to volunteer for the South African Navy, where he served initially as an ordinary seaman at Saldanha Bay, and later aboard the frigate HMSAS Swale in the waters off the Cape and Equatorial East Africa.

After demobilisation in early 1946, Caro returned to Wits to continue his studies, but changed direction to read for a Bachelor of Science in Physiology which was conferred in March 1947. He resumed his studies in medicine in 1947 while simultaneously studying towards a Bachelor of Science with Honours in Physiology. The Bachelor of Science with Honours, BSc(Hons), and the medical degree, MBBCh, were conferred in March and December of 1950, respectively. In 1951, Caro did his internship at Baragwanath hospital. This was followed by a second internship at Addington hospital in Durban, and house physician appointments at the Canadian Red Cross Hospital Special Unit for Juvenile Rheumatism, Taplow, and Hammersmith Hospital, both in the UK.

From 1954 to 1956 he was Instructor in Medicine at the State University of New York, and from 1957 to 1959, Research Associate in the Department of Physiology at the Graduate School of Medicine, University of Pennsylvania. From 1960 to 1966 he was a Lecturer in the Department of Medicine, St. Thomas' Hospital Medical School, and from 1966 to 1989, he directed the Physiological Flow Studies Unit, a pioneering bioengineering unit which he founded at Imperial College. From 1989 to his statutory retirement in 1991, Caro served as the first Director of the Centre for Biological and Medical Systems at Imperial College, later to become the Imperial College Department of Bioengineering.

During his career, Caro earned a membership and fellowships of Royal Colleges of Physicians *viz*. MRCP(Edinburgh) in 1954, F.R.C.P.(Edinburgh) in 1968 and F.R.C.P., Bye-Law 39(d) (London) in 1992. He was awarded a Doctorate in Medicine (MD) from Wits in 1961, for a thesis entitled “Pulmonary Function in Patients with Kyphoscoliosis”, in which, *inter alia*, he demonstrated that lung elastic recoil strongly determines airway resistance. He was also awarded two honorary doctorates *viz*. D.Sc (Engineering) (*Honoris Causa*) (London), and Docteur (*Honoris Causa*) (University of Paris XII), in 2003 and 2005 respectively.

Professor Caro’s scientific work has been primarily in the fields of respiratory and cardiovascular dynamics. In the 1960’s, together with colleagues, he demonstrated, using cadaver and flow studies, that areas in arteries which experienced lower wall shear stress are more likely to develop atherosclerosis than regions experiencing higher wall shear. This finding was, at the time, counter to the century-long prevailing view that blood flow-induced mechanical damage to arteries caused atherosclerosis. The low wall shear theory has stood the test of time, and has played a major role in shaping the course of research in vascular biology and atherosclerosis. The initial publications have been cited almost 800 times and the resulting publications on wall shear and vascular biology and pathology have been cited many times more.

Professor Caro later drew attention to the three-dimensionality of arterial geometry and flow, further advancing understanding of vascular fluid mechanics and mass transport in biology and disease. This work led him to found the company Veryan Medical, which has developed a helical graft that significantly reduces vascular access graft failure and has regulatory approval in the U.S.A. and Europe. The company is continuing with the development of other vascular devices, particularly helical stents for a range of vascular pathologies.

A second spin-out company, HeliSwirl Technologies, was founded by Professor Caro to extend the knowledge from his work in vascular biology and disease to industrial fluid flow problems. His development of Small Amplitude Helical Technology, has resulted in solutions to problems in efficient transport of single and mixed phase fluids. In 2006, the company received the Amec Award for Innovation and Excellence in SMEs of the Institute of Chemical Engineers (IChemE).

Professor Caro is a member of various international learned societies in physiology, medicine, biomedical engineering and physics in medicine, in some of which he has been chairman or a founding fellow. He has held two visiting Professorships *viz*. the Royal Society Visiting Research Professor at the Weitzmann Institute, and an Invited Professorship at Tokyo Women’s Medical College. He has also served on governmental or academic scientific advisory boards in the U.S.A., France and Japan. In 2003, he was the recipient of the prestigious Arthur Guyton Award from the International Society of Cardiovascular Medicine and Science, and in 2007 he received the Engineer Outstanding Achievement Award. A Caro Research Studentship has been created by the Bioengineering Department, Imperial College, and Wits has created the Colin G. Caro Award for the most distinguished student in Biomedical Engineering, in his honour.

Professor Caro has written 3 books, one of which, Mechanics of the Circulation, has become a classic and has been translated into Russian and Chinese. He has organised, and chaired many conferences, and has been an invited speaker at conferences and meetings around the world. He has authored or co-authored 178 peer-reviewed journal publications, 21 book chapters, edited 5 books and registered 8 patents.

Professor Caro currently runs an active research group in the Department of Bioengineering, Imperial College, where he is Emeritus Professor of Physiological Mechanics and Senior Research Investigator. He was chairman and is currently a member of the Steering Committee of the Cardiovascular Technology Network at Imperial College and of the Imperial College Imaging Science Centre. He is Research Director of both Veryan Medical Limited and HeliSwirl Technologies Limited.

In recognition of the global impact of his pioneering work in the field of Biomedical Engineering, the University considers it fitting to award to Colin Gerald Caro, the degree, Doctor of Science in Engineering *honoris causa*.