RICHARD W. LONGMAN
Professor, Columbia University, New York City

Richard Longman is Professor of Mechanical Engineering, and also of Civil Engineering and Engineering Mechanics, at Columbia University where he has taught for 49 years. He received a 50,000€ award from the Alexander von Humboldt Foundation for lifetime achievement in research. He is also the recipient of the American Astronautical Society (AAS) Dirk Brouwer Award for contributions to astronautics, and received best paper awards from AAS, AIAA, ASME, as well as a Proctor and Gamble Publication Award, a NASA Technical Brief Award, and two Alan Berman Research Publication Awards from the Naval Research Laboratories. He is a Fellow of AAS and AIAA. He served the AAS as Vice President – Publications, Vice President – Technical, First Vice President, Member of the Board of Directors, Director of Technical Committee Activities, Member of the Awards Committee, and served AIAA repeatedly on several technical committees, the Fellows Review Committee, and as an AIAA Representative on the Sperry Board of Award.

He is the author or co-author of approximately 485 research publications, with contributions concentrated in the fields of iterative learning control (ILC), repetitive control (RC), robotics in space, time optimal control of robots, and system identification algorithms producing differential equation models from input output data. Earlier work included gravity gradient stabilization of gyrostat satellites and issues in the control of large flexible spacecraft. He was one of the very early contributors to the first four fields listed above, with research starting in 1984 in each case. He has a reputation in ILC and RC for creating control algorithms for high precision motion that are effective in application, making advances in theory that address issues of practical importance. He demonstrated improvement in tracking accuracy of an industrial robot at NASA Langley Research Center performing a high speed motion, by a factor of 1000 in 12 iterations for learning. He, his students, and Dr. Jer-Nan Juang, contributed to the field of state space system identification, creating the OKID algorithm. A program package distributed by NASA was used by most aerospace companies within the US. The algorithm has general applications in control, but the initial motivation was for identification of the dynamics of flexible spacecraft or aircraft structures. The theory has been substantially extended recently in collaboration with doctoral student Francesco Vicario, ex-doctoral students Minh Phan and Dong Huei Tseng, and Prof. Raimondo Betti.

Professor Longman held the position of Distinguished Visiting Romberg Guest Professor at the University of Heidelberg in Germany. He was a visiting faculty member at MIT, and has held visiting positions at four universities in Germany, one university in Taiwan, two in China, one in Thailand, and one in Australia. He has had part time employment or consulting positions at 19 industries or government laboratories in the US, Europe, and Taiwan. He was co-chair of a conference in Taiwan in which the opening keynote speech was given by an Ex-President of Taiwan, and he appeared before the press cameras with

the Premiere of Taiwan. He has delivered keynote lectures at conferences, and invited lectures at universities and government laboratories in the US and 20 other countries.