

Preface

Introduction to Professor Han-Fu Chen

Academy of Mathematics and Systems Science, Chinese Academy of Sciences

Dedicated to Han-Fu Chen on the Occasion of His 75th Birthday



Professor Han-Fu Chen, one of renowned experts in control theory, was born in 1937 in Hangzhou, China. From 1961 to 1979, he had worked in the Institute of Mathematics, Chinese Academy of Sciences (CAS) after graduation from Leningrad State University, Soviet Union. He is currently a professor at the Academy of Mathematics and Systems Science, CAS. Prof. Chen was elected as the Member of Chinese Academy of Sciences in 1993, Fellow of the Institute of Electrical and Electronics Engineers (IEEE) in 1996, Fellow of the Academy of Sciences for the Developing World in 2005, and Fellow of the International Federation of Automatic Control (IFAC) in 2006. Since the 1960s, Prof. Chen has dedicated to and has made remarkable achievements in stochastic control, system identification, adap-

tive control, stochastic approximation and its applications. He has published 7 monographs and more than 190 papers, and has received a number of honors and awards, including National Natural Science Award and Asian Control Association Wook Hyun Kwon Education Award, etc. In the 1960s-1970s, his research focused on observability of stochastic systems and the state estimation without initial value. He also solved the singular control and game problem of stochastic systems under the quadratic performance index. In the 1980s, he turned to identification and adaptive control problems of stochastic systems. He first gave the convergence result of the stochastic gradient algorithm under persistent excitation (PE) condition, and he also gave a convergence analysis of the least square algorithm under both non PE condition and unbounded noise variances. He and his colleagues have made breakthrough contributions to the adaptive control area. Using a random excitation method, he proved that the parameter estimates converge to the true value and the closed-loop system's performance under adaptive control is asymptotically optimal. Since the 1990s, he has focused on convergence of stochastic approximation algorithms with applications to systems control and signal processing. Especially, by using stochastic approximation algorithms (SAA) with expanding truncations, the application scope of SAA has been expanded to the area of stochastic adaptive stabilization, large-scale optimization, and dynamic system with discrete events etc. In recent years, he put much effort on nonlinear systems identification. Against Hammerstein system, Wiener system and EIV system, he has given recursive identification method with strong consistent results. Progress has also been made in the adaptive control of Hammerstein system

and Wiener system. Prof. Chen has actively engaged in academic services and young talents cultivation. He has served as a Council Member of IFAC (2002-2005), President of the Chinese Association of Automation (1993-2002), Chairman of the 7th IFAC Symposium on System Identification, Chairman of Program Committee of the 14th IFAC World Congress, General Chair of the Chinese Control Conference since 2003, and Editor-in-Chief, Associate Editor or Member of the Advisory Board of a series of academic journals. He has also supervised a number of graduate students. February 10th, 2012, was the seventy-fifth birthday of Prof. Chen. At present, he is still active in scientific research and education. His meticulous attitude and tireless spirit interpret his way of academic research. On the occasion of Prof. Han-Fu Chen's seventy-five birthday, we hereby launch this special issue to give thanks for his contributions to systems and control science, and also to express our most sincere congratulations!

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