

Editorial

A Scholar of Dignity: Remembering Peter Luh

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It was a shock and disbelief to learn of Peter's death last December. To me, he was so fit in his figure, so healthy in his lifestyle, so mild and mindful in his social behavior, and so devout in his religious belief,....., I had expected a long and happy life for him, and planned to join his 80th or even 100th birthday celebration.

We had known each other for over three decades, beginning sometime somewhere at IEEE CDC (IEEE Conference on Decision and Control), ACC (American Control Conference), or IEEE ICRA (IEEE International Conference on Robotics and Automation) in the late 1980s. His soft speech, direct eye contact, and leaning forward and low posture when listening to others, were my initial, deep, and lasting impressions of him.

Our first academic exchange was about the use of Lagrangian multipliers for constrained optimization problems. Peter was conducting research on optimal factory scheduling and I mentioned to him that the concept of generalized Lagrangian multipliers invented by mainland Chinese scholars in mechanics might be useful to convert complex constraints, such as initial specifications and boundary conditions, into additional regular terms of objective functions for free optimization problems. Peter was interested and asked for detailed information, so I mailed him Weichang Qian (钱伟长)'s book "*Generalized Variational Principles*", one of 20 or so books I brought with me to the USA for my overseas study. Peter returned the book to me in about a month and called me, saying that Qian's work is mainly for statics and spatial problems, but shop scheduling is a pure temporal problem, and in this case, American Hugh Everett III had invented a similar concept of generalized Lagrangian multipliers for mathematical optimization. I went to our library to check related materials on Everett III's approach and found that his result on the Lagrangian dual problem for the primal optimization was reported in 1963, one year ahead of Qian's method but nine years behind Haichang Hu (胡海昌)'s result, as described in his 1954 paper, late called Hu-Washizu Variational Principle (胡-鸞津变分原理).

Citation: F.-Y. Wang, "A scholar of dignity: Remembering peter luh," *IEEE/CAA J. Autom. Sinica*, vol. 11, no. 9, pp. 1895–1897, Sept. 2024.

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Digital Object Identifier 10.1109/JAS.2024.124833

This was my first encounter with Hugh Everett III, I had no idea that a decade later, my research on Parallel Intelligence would run into his provocative concept of Parallel Universes and Many-Worlds theory in quantum physics.

I also sent him Peizhuang Wang (汪培庄)'s book "*Fuzzy Sets and Projects of Random Sets (模糊集与随机集落影)*" after our discussion on stochastic optimization problems and issues in model uncertainty and modeling uncertainty. Peter mailed the book back to me after a long time, but this time we had no further discussion.

One day near the end of 1989, I received an email from Peter inviting me to join an IEEE Committee on non-academic issues, I was surprised but signed up without much hesitation. I did not recall any activities from this committee, and when I asked Peter about it almost two decades later, he had forgotten it completely and said he had no memory of it.

We visited Tsinghua University together in 1993 for the first Chinese Congress on Intelligent Control (CCIC). This was my first return to China after seven years and I remembered it was also his first visit to mainland China. In Beijing, I invited him and other Taiwanese friends to visit Professor Lin Huang's team at Peking University. During the whole CCIC, we had many discussions on helping Chinese scholars of control, robotics, and automation in their efforts to connect with the outside world, which was much more difficult compared with today's economic and political situations.



Fig. 1. Our Visit to Peking University in 1993.

Peter is very kind to others and easily accessible in helping people in need. He was a strong supporter in my effort to establish the first academic publication in intelligent control, served as the founding Editorial Board member for my International Journal of International Control and Systems (IJICS)

in 1995, and promoted IJCS in various situations and opportunities. I also consulted him in evaluating ABB USA's first hiring in its industrial robotics program when I was asked to review an applicant who graduated from his department, his information proved to be proper and very precise a decade later. This was another example showing that while Peter has a great willingness to help others, but he is principled, and would say and do within his boundary and code of professional and ethical integrity.

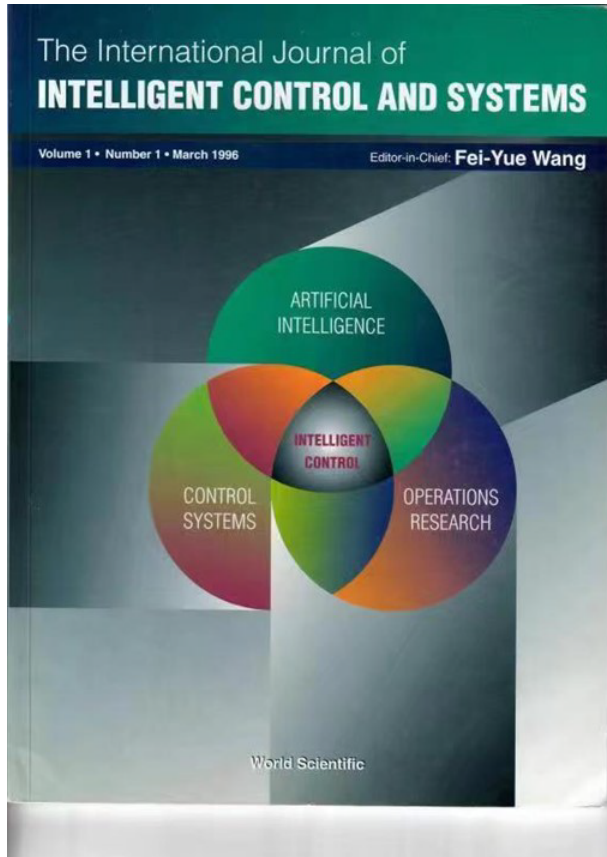


Fig. 2. The Launch of IJICS in 1996 with Peter's Support.

After 2000 and especially in the late 2010s, Peter spent a great deal of his time helping China's research and development in intelligent control and optimization, but unfortunately, we had fewer opportunities for face-to-face meetings. In a few conversations on issues related to organizations and activities of NNSFC (National Natural Science Foundation of China), CAA (Chinese Association of Automation), and IFAC (International Federation of Automatic Control), he said little, but we often had more differences than agreements. However, I really appreciated his balanced thinking and helpful advice, and sincerely hoped that others would think and act like him.

His final help to me was his advice and suggestions in my failed endeavor of creating the IEEE/CAA Journal of Intelligent Science and Technology (JIST) from 2015 to 2018. After initiating and launching five IEEE publications successfully, I was ready to start the JIST project with Nils Nilsson. However, by the time I officially submitted my proposal, the general atmosphere and attitude towards Sino-US academic collaboration had changed dramatically, and some strong sup-

porters before had tried to keep a distance or even oppose further cooperation. At the beginning of this process, Peter was a senior member of the IEEE TAB (Technical Activities Board) Periodicals Committee, and then became its Chair, I had received much help from him, but the opposition was too strong to overcome. In my last presentation to the TAB Periodicals Committee, some members suggested me change the title to IEEE/CAA Transactions on Artificial Intelligence and I refused, stating that the two names meant essentially the same to me but Intelligent Science is more leaning toward the future, and there were too many well established AI publications in the field already. During the break, Peter advised me to accept the suggestion and come back for a new presentation with the new title. I accepted his advice but expressed my concern: many powerful societies might come up to grasp the new title, and very likely there would be no space for CAA's participation. I was so pessimistic about the outcome, that instead of going myself, I asked Prof. Jun Zhang of Wuhan University to represent me for the new presentation three months later. The outcome was as I had expected in the worst scenario: The proposal for IEEE/CAA Transactions on Artificial Intelligence was rejected, but IEEE Transactions on Artificial Intelligence was approved, and CAA's role and involvement should be delegated and conducted through IEEE Systems, Man, and Cybernetics Society. Of course, I was disappointed by this, but I must thank Peter for his efforts, help, and support.



Fig. 3. Peter's Lecture in Our Lab in 2012.

I met Peter at IEEE TAB 2019 at Atlanta, Georgia, USA for the evaluation of IEEE TCSS (IEEE Transactions on Computational Social Systems) and IEEE JRFID (IEEE Journal of Radio Frequency Identification), he looked agile and healthy as usual, and I couldn't realize in my wildest dream that this would be our last meeting.

With his former student Dr. Zhen Shen in my lab, we expressed our gratitude for his life in the traditional Chinese verse at his funeral: A great, dedicated scholar with students all over the world; A venerable, respected gentleman with fame widespread across countries.

Farewell, Peter, we will remember you, a scholar of dignity with outstanding achievements.

Rest in Peace, and forever peace.

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Fig. 4. At Evaluation Meetings of IEEE TCSS/JRFID in 2019.

Beijing, China
 Started at San Francisco, USA, in October 2023,
 and Completed in Dublin, Ireland, in July 2024.

In Memoriam: Peter Luh (1950–2022)

Bio Sketch

Peter B. Luh received his B.S. from National Taiwan University, M.S. from M.I.T., and Ph.D. from Harvard University. He had been with the University of Connecticut since 1980



and was a Board of Trustees Distinguished Professor and the SNET Professor of Communications & Information Technologies. Professor Luh was a Life Fellow of IEEE, and the Chair of the IEEE TAB Periodicals Committee for the 2018–19 term, overseeing 190 IEEE journals and magazines. He was the VP of Publications of IEEE Robotics and Automation Society (RAS, 2008–2011), the founding Editor-in-Chief of the IEEE Transactions on Automation Science and Engineering (2003–2007), and the Editor-in-Chief of IEEE Transactions on Robotics and Automation (1999–2003). He was also the Founding Chair of the Steering Committee of the IEEE Conference on Automation Science and Engineering (2006–2011). His research interests include smart grids, intelligent manufacturing, and smart and green buildings. He received RAS 2013 Pioneer Award for his contributions to the development of near-optimal and efficient planning, scheduling, and coordination methodologies for manufacturing and power systems; and 2017 George Saridis Leadership Award for his exceptional vision and leadership in strengthening and advancing Automation.

Acknowledgement:

Photo is adapted from <https://www.ieee-ras.org/about-ras/latest-news/in-memoriam-peter-luh-1950-2022>.

Bio Sketch is adapted from <https://www.ee.uconn.edu/peter-bluh/>.