Control and Cybernetics
vol. **55** (2026) No. 2
pages: 133-137
DOI: 10.2478/candc-2026-0006

In Memoriam
Professor Andrzej Piotr Wierzbicki (1937–2026)

Professor Andrzej Piotr Professor Wierzbicki passed away on June 12th, 2026 leaving his outstanding legacy in a wide range of fields, including science, research, technology, and education. Professor Wierzbicki became one of the most influential scientists worldwide in the fields of systems theory, control engineering, mathematical programming, decision-making support and analysis, knowledge creation and management, as well as rational theory of intuition, technological eras, and information society.

Motivated by the needs of practical applications, he not only developed numerous original concepts in these fields, but also pushed their applications by organizing diverse collaborative research activities aimed at introduction of the pioneering theories in practice. The practice included contributing his knowledge to various elements of policy-making in Poland and the EU. In particular, he made vital contributions to the development of information technologies in Poland.

Born on 29 June 1937 in Warsaw, Poland, he received in 1960 his MSc in Communications with a specialization in automation from the Warsaw University of Technology, Faculty of Communications, in 1964 his PhD degree at the Warsaw University of Technology, Faculty of Electronics, his Doctor of Science degree (habilitation) in 1968, the title of professor in 1976, and of full professor in 1992.

Professor Wierzbicki started his long professional career in 1959 by taking a two-year engineering job at the Institute of Electrical Engineering, amplified through a research internship at the Darmstadt University of Technology, Germany. During this period, he developed several novel control-engineering solutions and implemented them in the sugar and steel industries. The solutions also resulted in industrial patents.

From 1961 on, he was employed at the Warsaw University of Technology (WUT). The WUT continued to be his research home for over 40 years, although the original names of the Faculty and the Department changed: the Faculty of Communication was later renamed to Electronics, and subsequently to Electronics and Information Technology and the Chair of Automatic Control was later reorganized into the Institute of Control and Computation Engineering.

In the 1960-70's, he continued to focus on developing the control-engineering solutions and their industrial applications. In 1970, he took an internship in the USA, at the Faculty of Electrical Engineering of the University of Minnesota and at the Division of Applied Mathematics, Brown University. This research and resulting applications brought the development of novel theories of sensitivity analysis of non-linear control systems characterized by inherent uncertainties. He served as deputy director of the Institute of Automatic Control, Vice-Dean, and Dean of the Faculty of Electronics in 1975–78. His industrial experiences combined with management practice resulted in a new research focus, namely multiple-criteria analysis and its applications to model-based decision-making support.

In 1978, the International Institute for Applied Systems Analysis (IIASA) in Austria offered Professor Wierzbicki a research position at its System and Decision Sciences (SDS) program, which, besides conducting own research, provided methodological support to all other IIASA programs. In 1979-1984, he was the SDS chairman. Starting with 1978, he developed the theory and methodology of vector optimization, focused on supporting model-based multi-criteria decision-making. This approach, called the reference point method, is theoretically based on new characterizations of vector-optimal solutions using conic separation of sets and a dedicated class of achievement (scalarizing) functions, parametrically dependent on the reference point. At the methodological level, the approach emphasizes user sovereignty over the decision support system, which must support (not replace) users in their choices of decisions. This approach gained international acceptance and became the basis for further developments, made by many researchers, and since then has been widely used worldwide for numerous multiple-criteria analyses in diverse application areas.

Professor Wierzbicki, after completing in 1984 his full-time job at IIASA, visited the Institute several times and contributed to its research in various ways. In 1984-1985, he gave a 3-month PhD course at the Hagen University, Germany, as well as shorter courses at various universities in Poland, Germany, and the USA.

In 1985, Prof. Professor Wierzbicki returned to Poland and resumed his professorship at the WUT. He continued intensive work on previously studied topics, as well as extended his research scope, in particular towards the theory

and practice of negotiations, and the rational theory of intuition. In 1989-90, he was invited to the Kyoto Institute of Economic Research, Japan, to take the research professor position in order to work on extensions of the multiple-criteria game theory and its applications to decision-making.

Professor Wierzbicki, in addition to the research and educational activities, initiated and led two programs supporting Polish researchers. First, he coordinated the multi-year extensive collaborative research program between IIASA and several Polish scientific institutions, providing substantial funding for over thirty researchers. Second, he implemented at WUT the EU-funded Tempus program helping the scientists in the transition into the EU access.

In 1996, he was appointed the Director of the National Institute of Telecommunications (NIT). He accomplished the institute's transition from its focus on traditional telecommunications into a modern organization, addressing the telecommunications needs of the information era industry and society. This included the new direction of modern decision-making support, which included advanced methods of Operations Research, in particular efficient - real-time processing and analysis of huge amounts of data. The developed methods were applied, e.g., in the road toll processing, covering the Polish roads, as well as in the real-time monitoring of cardiology patients. The institute also implemented internally modern information technology and its institute-wide support, which substantially increased institute's efficiency. Professor Wierzbicki led the institute until his retirement in 2004. Then he served as the institute's research professor until 2018.

In 2004 Professor Wierzbicki was invited for four years to become a research professor at the Knowledge Science School at the Japan Advanced Institute of Science and Technology (JAIST) in Ishikawa, Japan. He investigated there the micro-theories of knowledge development, meant to address the needs of the knowledge-based economy. The new theories included Professor Wierzbicki's extensive experience in the management of research institutions and projects, as well as industrial projects. The new theories differ from the philosophical theories of knowledge creation that are based on historical data analyses. The new theories were tested on the industrial case studies and described in two books on knowledge creation and integration, as well as on building creative environments for this purpose.

Professor Wierzbicki, in addition to his scientific and educational activities, was active in diverse advisory committees in Poland and in the EU. He was appointed by the European Commission as a member of the Information Society Technology Advisory Group (ISTAG) for 2000-2002. For the 1991–1994 term, he was elected chairman of the Applied Research Committee of the National Science Foundation and deputy chairman of the Council of the Polish Science Foundation. In the years 1998–2002, he participated in Brussels as an expert

in the field of telecommunications, and in the negotiations preparing Poland's accession to the European Union. In 1995-2000, he was a member and the chairman of the Committee for Scientific Research, including several of its advisory teams: on the Information Infrastructure; on the Scientific Development, as well as on Promotion of Science, and on Scientific Cooperation with Foreign Countries. He was also a member and chairman of several Scientific Councils (of the Systems Research Institute of the Polish Academy of Sciences (SRI PAS), of the Research Institute for Automation and Measurements, and of the NASK, National Research Institute). From 1986 onwards, he was a member of the editorial board and, for some time, also the editor, of the journal *Future: World, Europe, Poland* of the *Poland 2000 Plus* Forecast Committee at the Presidium of the Polish Academy of Sciences.

Professor Wierzbicki developed during his long and diversified professional career, an impressive scientific legacy encompassing books, monographs, hundreds of publications, and real-world problem solutions that earned international recognition. He published 12 scientific books and 4 textbook-type monographs, served as the scientific editor of 6 books, published more than 150 articles in peer-reviewed scientific journals and book chapters, presented more than 120 papers at scientific conferences, and held 3 implemented and used patents.

He has made internationally recognized contributions to vector optimization, model-based decision-making support, control and optimization theory, including the authorship of the maximum principle for the delayed processes, algorithms of the shifted penalty functions, and the augmented Lagrange functions with generalizations to the dynamic case and constraints in Hilbert space. He was the author of a general approach to the theory of sensitivity of dynamical systems and optimal control, based on the distinction between the roles of the basic and extended models and on the structural version of the implicit function theorem. Moreover, Professor Wierzbicki contributed to the theory and techniques of negotiation, as well as to the rational theory of intuition.

Professor Wierzbicki's achievements were recognized through: the Georg Cantor Award of the International Society for Multiple Criteria Decision Making (MCDM) for his seminal work in multiple-criteria analysis, 1991; the Officer's Cross of the Belgian Order of Invention for scientific contributions to the EU project evaluations, 2003; and the Hofmokl Award for his initiative and involvement in building municipal computer networks in Poland, 2004.

Professor Wierzbicki did also, over several decades, lecture at various universities on a wide scope of topics. He was active in scientific communities; in particular, he supervised more than 20 PhD theses, and was an advisor in habilitation processes; several of his PhD students have later become professors. Moreover, he authored 52 reviews of PhD dissertations, advised in 20 habilitation processes, and reviewed 12 professorial proposals worldwide.

Professor Wierzbicki's ground-breaking scientific achievements were based on the holistic approach to problem solving, integrating the relevant knowledge developed in diverse disciplines (engineering, mathematics, economy, psychology, sociology, philosophy, policy-making, environment, and others). Therefore, the achievements were based on long-term collaboration with the corresponding scientific communities.

We conclude with a personal note: colleagues who were lucky to collaborate closely with Professor Andrzej P. Wierzbicki for a long time, appreciated his friendly attitude to people of diverse cultures and countries. He is remembered not only for his scientific excellence, but also for his deep knowledge of history and culture of diverse countries, international food expertise, as well as for his social skills demonstrated by organizing very nice and long parties, and sometimes providing colleagues with his legendary *bigos* (the traditional Polish dish).

Janusz Granat
(National Institute of Telecommunications and Warsaw University of Technology)

Marek Makowski
(International Institute for Applied Systems Analysis and Systems Research Institute, Polish Academy of Sciences)

Zbigniew Nahorski
(Systems Research Institute, Polish Academy of Sciences)