



UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE & ENGINEERING

Memorial Tribute to

HANS KUNOV

Professor Emeritus

The Edward S. Rogers Sr. Department of Electrical & Computer Engineering

October 13, 2022

Be it resolved –

THAT the Council of the Faculty of Applied Science & Engineering record with deep regret the death on June 4, 2022 of Professor Hans Kunov.

Hans Kunov was born in Copenhagen in 1938 and grew up in a town close by. His father passed away when he was only four years old and Hans was raised in the company of his mother and sister. The death of his father had a devastating effect on the family and likely shaped his outlook as a professor and as a mentor.

Hans grew up under several dominating influences at that time. There was of course the legacy left by Niels Bohr and atomic physics. This was however not to be Hans' calling. Instead, the influence of another famous Danish scientist by the name of Oersted (the discover of electromagnetic induction) would have a greater influence as it was Oersted who created the Technical University of Denmark where Hans did his degree in electrical engineering. The second major influence was of course Bruel and Kjaer which dictated the scientific norm of Denmark and gave it its prominence in the area of acoustics. It was this influence that Hans decided to pursue his master's thesis on measuring distortions in hearing aids.

Hans' association with acoustics soon ended when he decided to pursue something different for his PhD. He was greatly influenced by the work of Hodgkin and Huxley and instead decided to do modelling work in electroneurophysiology. Soon after his PhD, as with many Danish engineers, Hans wanted to go abroad. He received two job offers, one from UCLA and the other from Toronto but it was the Vietnam War that ultimately swayed his decision to come to Toronto.

After arriving in Toronto, Hans began what was to be his lifelong — and as it turns out — only job as a faculty member in biomedical and electrical engineering. He was hired by Norman F. Moody who was the founder and founding director of the Institute of Biomedical Engineering. At that time, Hans decided yet again to work on a different field, this time in ultrasound imaging or acoustic holography. In parallel, he continued his work in electroneurophysiology collaborating with people from the physiology department.

In the 70's, Hans met a Danish expatriate by the name of Poul Madsen living in the Toronto area. Poul was an engineer working on biomedical instrumentation in the general area of hearing diagnosis. Hans' association with Poul began with some contract work, became a lasting friendship and finally turned Hans back into the area that he first started with — that of the acoustics of hearing and speech. With the help of Poul Madsen, Hans established a laboratory for hearing at the Institute of Biomedical Engineering. He later went on to study otoacoustic emissions which is useful in detecting problems in hearing in young infants and newborns, and started the company Vivosonic based on the same technology.

Hans was always interested in mentoring and teaching young people. Outside of the University he was very active in the Big Brothers program. Within the University, he made several significant contributions towards teaching and pedagogy. First, he conducted studies on whether audiovisual enhancements during lectures would aid in student engagement and performance. In experiments conducted in classes he taught, to his surprise he was not able to demonstrate a significant change in test performance. Second, in the 90s Hans created a fourth year interdisciplinary ECE course on acoustics, the only course of its kind at U of T and is now the foundational course of the Engineering Music Minor at the Faculty of Applied Science and Engineering. Third, Hans was particularly enthusiastic in teaching design to undergraduate students and was actively engaged in the teaching of APS111/112 (Engineering Strategies & Practice I/II). Fourth, for over 15 years, Hans Kunov set the standard as both a supervisor and an administrator of ECE capstone projects in ECE496. He took such care in guiding and mentoring his students, and continued to supervise capstone teams up until his death. As an administrator, Hans was always the first to complete his marking; when Hans finally retired from the course, Phil Anderson pondered "who will be there to shame us into getting our reports marked now that Hans won't be reporting first?" Finally, he was the Dean's Designate on Academic Offences, a position he held until the very end. Vaughn Betz observed how Hans "turned difficult meetings into teaching moments, having compassion for the students and their situation but also eloquently explaining why engineers need to have integrity at their core." Hans shared a tremendous passion for working with young engineering students.

Hans was a great visionary, teacher, mentor, engineer, philosopher, friend, and above all a caring, critical, and fair human being. In the early 1990s when the Engineering Science students at the University of Toronto presented a petition (signed by 200 students) to start a biomedical engineering option in Engineering Science, he sprang into action, and approached colleagues Berj Bardakjian and Yu Ling Cheng to start working on developing such a program. They had many meetings in his "director's office", where they started charting their path. He left their deliberations on the blackboard of his office for a long time as they kept filling in the holes and improve the offering. It was a challenge like any "new" endeavor as this was the first undergraduate biomedical engineering program in Canada. It started with a bang as it became the most popular option, along with the Aerospace option, in the Engineering Science program. He was the "force field" pushing that program forward.

On the administrative front, Hans was Director of the Institute of Biomedical Engineering from 1989-1999, and its Associate Director from 1984-1986. Before that, he was also Associate Chair of the Division of Engineering Science. For his service, Hans was awarded the Queen's Golden Jubilee

Medal “for significant contribution to Canada, to the community, or to fellow Canadians” in 2003.

Hans is survived by his wife, Clare Lamb; his sons, Mads (Marie) and Niels (Daniella); and their mother, Helle; as well as his five beloved grandchildren and his sister, Else.

Be it further resolved –

THAT this tribute to Hans Kunov be inscribed in the minutes of this Council meeting, and that copies be sent to his family as an expression of the respect and gratitude of the members of this Council.

Prepared by Professors Berj Bardakjian, Khoman Phang and Willy Wong