In Memoriam Attila Kuba (1953–2006)

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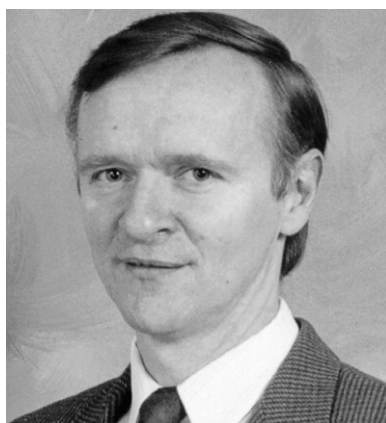
After a long serious illness, Attila Kuba passed away on November 1, 2006. We will remember him as an inspirational scientist and teacher, but also as a great man and personal friend.

Attila Kuba was born on 30th May 1953 in Kecskemét, Hungary. He attended the elementary and secondary school in Szeged. During that period, he showed a diversity of talents. He was involved in various sports, including gymnastics and kayaking, in which he won several gold medals in junior competitions. In addition, he finished his secondary education with outstanding results.

When he entered to József Attila University (JATE), he decided that he preferred a career in science over a career in sports. Yet sports, and water sports in particular, have always played an important role in his life after that.

During his studies, he participated in a SEGAMS project, concerning the development of a nuclear medicine system for gamma cameras, by which he got acquainted with the field of emission tomography. Attila graduated in 1976 at József Attila University as a Mathematician. He chose to pursue a scientific career at this university, where he worked from 1975 till 1993 at the Cybernetic Laboratory of the JATE. During that time, he obtained several academic degrees. In 1978, he received the doctoral degree, followed by a candidacy in 1983 and the academic doctoral degree in 2004.

He spent one year in Erlangen funded by a Humboldt fellowship, where he worked with Prof. Friedrich Wolf, Prof. Heinrich Niemann, and Prof. Dietrich Kölzow (Mathematical Institute, University of Erlangen-Nurenberg) between 1983 and 1984. This year abroad has been very important for him, as illustrated by his position as Secretary, and subsequently President, of the Hungarian Humboldt Association. Later, he spent several months in Triest, London, Paris, Pennsylvania, and in New York as visiting professor.

From 1993 he led the Department of the Applied Informatics (later Department of Image Processing and Computer Graphics). At first, he held a position as Associate Professor, after which he was appointed Full Professor in 2005. He was the "boss" of the department in the best sense. He always was the first who went into his office and usually he was the last to close the door. He frequently worked on Saturday morning as well. The contact with his colleagues can be characterized more by friendship than by a classical chief vs. employee relationship.

He managed the workflow within the department with great care. He never ordered his staff members: his requests were always achievable and before his decisions he always asked other's opinions. He supervised projects and assignments with great enthusiasm, which gave rise to similar enthusiasm among the other project members. He sponsored his colleagues and students generously and used his network of foreign connections to their aid.

As mentioned above, Attila Kuba was a man of many talents. When he worked at home, he enjoyed listening to symphonic music during his work, whistling the tunes with perfection. His favorite composer was Ludwig van Beethoven. He was also skilled in drawing. He designed several logos of university events.

According to his former roommates, Attila Kuba did not change by lapse of time. He has always been precise, nice, enthusiastic, and most of all, helpful to others. After his death it turned out that he had just started to write his memoirs. He prepared it with the same care as he did before with his research papers, first carefully planning the structure of his work. There was a section titled "Why is it good working abroad and why it is better at home in Hungary". He liked to travel and work abroad and to know the foreign cultures but he always returned home with pleasure.

Attila Kuba was a scientist with remarkable research results, a teacher who founded a school at Szeged, and an active member of the scientific public life. We would like to honour his memory with this special issue.

1. Researcher

The main research area of Attila Kuba was *Discrete Tomography*. He should be considered as one of the "founding fathers" of this research field. He worked on Discrete Tomography problems from the early years of his research until his death, which led to a wide range of novel research ideas. Already as a student, he wrote a paper entitled *Reconstruction of Three Dimensional Objects from Thickness Projections*. His first journal paper on this subject appeared in 1984: *Reconstruction of two-directionally connected binary patterns from their two orthogonal projections*. His last book, which he edited jointly with Gabor T. Herman, appeared after his death. His collaboration with Gabor Herman proved to be fruitful throughout his career, leading to numerous joint publications. His results played a major role in the advance of Discrete Tomography. In particular, he developed an algorithm for the reconstruction of hv-convex sets, leading to a range of related publications, by himself and other researchers, on the development of image reconstruction algorithms that take geometrical information into account. He also achieved impressive theoretical results on the reconstruction of measurable sets from projections and on reconstruction problems from absorbed projections.

The scientific results of Attila Kuba were not confined to Discrete Tomography: he contributed to the fields of *Medical Image Processing* and *Discrete Geometry* as well. He belonged to the rare category of researchers, who like both theoretical *and* practical problems. He could take delight in nice theoretical results, while he was just as enthusiastic about successful applications.

Attila Kuba published almost 200 research papers. He always payed particular attention to writing his papers. His articles were well structured and clearly comprehensible. His strive for accuracy was not restricted to his writings. He prepared his talks with similar care, creating nice hand-written transparencies and notes for the slides.

For his research work, he was awarded the *László Kalmár prize (1981)* and the *Széchenyi fellowship (1997)*.

2. School founder, teacher

Besides his research, educating the new generation was also important to Attila Kuba. He prepared nice hand-written transparencies for his lectures. In the subjects he taught, he used his rich research experience to add value to the usual contents of the curriculum. He was a co-founder of the *Image Processing Summer School in Szeged*, where he taught a variety of courses for regular and Ph.D. students. He was a thesis supervisor for many students, whom he also involved in research and development activities. For the most talented students, he provided support and advice in obtaining grants and scholarships. His teaching activities were awarded the András Fáy prize (School founder master teacher prize) in 1997.

3. Active participant of the academic life

Attila Kuba was active in many scientific associations, including the following:

- János Bolyai Mathematical Society,
- John von Neumann Computer Society,
- Hungarian Association for Image Processing and Pattern Recognition,
- Hungarian Humboldt Association,
- International Association for Pattern Recognition,
- Information Processing in Medical Society.

He was member of the editorial board, guest editor and regular reviewer of many prestigious journals, and served as program committee member for numerous international conferences.

When he was the main organizer of conferences himself, he precisely planned the activities. All scenarios were discussed several times and all organizers had a detailed task schedule, almost for every minute of the conference.

Attila Kuba was the organizer of the following international programs:

- Discrete Tomography Workshop, Szeged, 1997.
- 16th Int. Conf. on Information Processing in Medical Imaging, IPMI'99, Visegrád, 1999.
- 2. Ungarische Humboldt-Konferenz, Budapest, 2001.
- 9th Int. Workshop on Combinatorial Image Analysis, IWCIA 2003, Palermo, Italy, 2003.
- Workshop on Discrete Tomography and Its Applications, New York, USA, 2005.
- 3. Ungarische Humboldt-Konferenz, Budapest, 2006.
- 13th Int. Conf. on Discrete Geometry in Computer Imagery, DGCI 2006, Szeged, 2006.

We have known Attila Kuba as a versatile person, who communicated in a very kind, yet also direct way. He displayed an enormous working ability and professional attitude. His calm, modest yet sparkling personality touched us all, and will be intensely missed.

Selected contributions

Edited books, conference proceedings, journal special issues

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