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Pattern Recognition Letters 26 (2005) 231–232

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Pattern Recognition  
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## Editorial

Prof. Azriel Rosenfeld, one of the founders of pattern recognition and the closely related fields of image processing and computer vision, passed away in February 2004 at the age of 73 after a courageous bout with cancer. Prof. Rosenfeld received his rabbinical ordination in 1952 and a doctorate in Hebrew letters in 1955 both from Yeshiva University in New York City. He also received a Ph.D. in Mathematics from Columbia University in 1957. After working on image processing applications in industry for a number of years, Prof. Rosenfeld joined the Computer Science Center at the University of Maryland in 1964, where he served as a University Professor. There he founded the Computer Vision Laboratory. Subsequently, he founded the Center for Automation Research based on his strong belief in the importance of the integration of computer vision and robotics. He was the Director of the Center for Automation Research until his retirement in 2001.

Prof. Rosenfeld had a wide impact on our field. His book “Picture Processing by Computer”, published by Academic Press in 1969, served to establish the field on a sound theoretical footing. He also co-founded the journal “Computer Graphics and Image Processing” which was in recognition of his and the other co-founders belief in the close interaction between these two fields. This journal eventually evolved through a sequence of changes in name and focus to “Computer Vision, Graphics, and Image Processing” to eventually be the “Image Understanding” journal. It is interesting to observe how right his vision was on the close interaction between computer graphics, image pro-

cessing, and computer vision as is seen by the prevalence of image processing papers in recent conferences on computer graphics. He also was a co-author with Avinash Kak of the book “Digital Picture Processing” the latest edition being published by Academic Press in 1982.

Prof. Rosenfeld was one of the founders of the ICPR Conference which was first held in Washington, DC in 1973. In 1988 he was honored by the IAPR as the first recipient of its highest honor, the K.S. Fu Prize, for his outstanding achievements. Prof. Rosenfeld’s career was marked by remarkable productivity along numerous measures. He authored or co-authored over 600 book chapters and journal articles. He wrote, co-wrote, edited, and co-edited over 30 books. He supervised the Ph.D. theses of nearly 60 students.

Prof. Rosenfeld was a man of many dimensions. He touched every one of us in a different way both personally and professionally. He was not long on formality. To a large number of people in the field he was known as simply Azriel. For many, an indelible memory of Azriel is of an individual who was able to juggle many tasks simultaneously. These memories invariably involve an encounter at a conference where we were either in awe of approaching him or appreciative of his unstinting generosity in never failing to respond immediately to our queries whether it was in person, by mail, or most recently by e-mail. For others it is his scholarship as exemplified by his seeming obsession with setting the record straight for our field as evidenced by his yearly devotion to the Herculean task of compiling a bibliography of the relevant

literature that appeared in the current year. He did this each year until his retirement in 2001.

These conference encounters while clearly not the most important of Azriel's achievements have nevertheless inspired our dedication of this special issue of Pattern Recognition Letters to Azriel's memory. We believe that it is a fitting tribute in many ways. In particular, it commemorates his role in co-founding the IAPR which has been distinguished in no small part by its biennial conferences whose proceedings and attendance have grown by leaps and bounds since the first meeting in 1973, as well as the growth of this journal. Azriel's role in the IAPR is celebrated in this issue by containing one contribution for each ICPR conference that was held once the IAPR was founded in 1978. For each conference, we have sought a representative contribution from at least one of the organizers of the appropriate conference, most of whom had a long personal and professional connection to Azriel. In some cases, we have more than one contribution. In other cases, the passage of time, and the seemingly fleeting nature of life, have prevented all of the organizers from participating. In particular, we speak of the late Jean Claude Simon (co-organizer of the 1986 ICPR) and Edzard Gelsema (co-organizer of the 1992 ICPR).

The issue starts fittingly with a long reminiscence of Azriel by Makoto Nagao who organized the first IAPR sponsored ICPR in Kyoto, Japan, in 1978. The rest of the contributions are prefaced by a shorter dedication. They appear in this issue ordered according to the relative ICPR year: *Discrete Geometry and Azriel Rosenfeld*, Theo Pavlidis (Miami, USA, 1980), *Evaluating the Quality of Light Fields Computed from Hand-held Camera Images*, Heinrich Niemann and Ingo Scholz (Munich, Germany, 1982), *Removing Shadows*, Martin D. Levine and Jisnu Bhattacharyya (Montreal, Canada, 1984), *Synthesis for Handwriting Analysis*, Nicole Vincent, Audrey Seropian and Georges Stamon (Paris, France, 1986), *One Long Argument: Azriel Rosenfeld and the Genesis of Modern Image Systems*, Virginio Cantoni and Stefano Levialdi (Rome, Italy, 1988), *Automated Cartographic Text Placement*, Herbert Freeman (Atlantic City, USA, 1990), *On Musical Stylo-metry: a Pattern Recognition Approach*, Eric Backer and Peter

van Kranenburg (The Hague, The Netherlands, 1992), *Two Motion-blurred Images are Better than One*, Alex Rav-Acha and Shmuel Peleg (Jerusalem, Israel, 1994), *Vision Pyramids that Do Not Grow too High*, Walter G. Kropatsch, Yll Haxhimusa, Zygmunt Pizlo and Georg Langs (Vienna, Austria, 1996), *Graphical Models for Graph Matching: Approximate Models and Optimal Algorithms*, Terry Caelli and Tibério S. Caetano (Brisbane, Australia, 1998), *The Image Importance Approach to Human Vision based Image Quality Characterization*, Anthony J. Maeder (Brisbane, Australia, 1998), *An Approach of Visual Motion Analysis*, Alberto Sanfeliu and Juan J. Villanueva (Barcelona, Spain, 2000), *Analysis of Errors on Handwritten Digits Made by a Multitude of Classifiers*, Ching Y. Suen and Jinna Tan (Quebec City, Canada, 2002), and *Object Recognition by Symmetrised Graph Matching using Relaxation Labelling with an Inhibitory Mechanism*, Alexey Kostin, Josef Kittler and William Christmas (Cambridge, UK, 2004).

We thank all scientists who contributed as authors and referees to prepare this special issue. Many thanks are due to Jagan Sankaranarayanan who helped us in putting together the articles, and Elsevier for the support during the whole process.

We hope that this small effort will serve both as a reminder of our loss and an inspiration as we venture towards other frontiers.

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Available online 9 December 2004