University of Pavia

Ph.D. School of Electrical and Electronics Engineering and Computer Science

SEMINAR

One More a Specific Application of Hough/Radon Transforms in Image Processing

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25/10/2018 – h. 16:00

Aula Seminari ex Elettronica

Part 1: Simulation and/or verification of visual stimuli to help experimental modeling of voluntary saccadic eye movements during human brain decision making.

Conventional approaches are known to generate visual stimuli (video clips) and to verify them from the both viewpoints, of the actor, who participates in the experiments, as well as of the researcher, who conducts the experiments. A specific approach to verify similar stimuli using an image transform well known as Hough Transform (HT), or as Radon Transform (RT) that is one and the same if consider them regular series of linear projections of a 2D image into an 1D target. To be effective the new approach needs that the HT|RT realizations used to be most of all enough precise than speedy. Are such realizations known – in case of interest, please visit also the 2d part of the presentation.

Part 2: What to choose if a discrete HT|RT is necessary, the fastest performance or the exact performance - speed against precision:

i) It should be said more formally of what is the equivalence defined between HT and RT;

ii) The exact (ρ,θ)-HT|RT -- definition and discrete performance;

iii) The fastest discrete performance of the HT|RT -- via (fractional) Fourier transform -- variants of performance, current status and recent advance; and

iv) A comparative experimental study for “what to choose” -- speed or precision.

Bio: Assoc. Prof. Ph.D Dimov Dimo Todorov helds his position at the Institute of Information and Communication Technologies (IICT) of BAS since 1991. He obtained his master in Cybernetics engineering at the Technical University of Sofia in 1973, his extra qualification in Applied Mathematics at the same University in 1974, and his Ph.D. degree in Informatics in 1979. From 1982 he works in the Bulgarian Academy of Sciences (BAS) in the areas of Computer Graphics and Databases (1982-1989), Informatics and Ecological Engineering (1989-1994), Image Processing and Pattern Recognition (1994-...). Besides his duties in the IICT research, he is also a visiting lecturer of the State University of Sofia and the New Bulgarian University in Sofia, in their master and/or bachelor programs, concerning the area of Image Processing and Recognition, since 1995 and till now. Dr. Dimov is member of the Bulgarian Association of Pattern Recognition (since 1994), member of the editorial board of Cybernetics & Information Technologies J. of IICT-BAS (since establishing in 2000), and the scientific secretary of the international conference CompSysTech (since 2002), annually organized by Bulgarian Association of Lecturers in Computing, since 2000. He is also Bulgarian representative in the South East European Transport Research Forum, since establishing in 1997. More than 130 publications in English, Russian or Bulgarian and, more than 20 successful projects are in his research and scientific activities in the areas of Image & Speech & Signal Processing, Pattern Recognition, Content Based Image Retrieval, Content Based Object Retrieval, Multimedia Databases, Medical Imaging, Computer Graphics, Data Mining & Information Retrieval Systems, etc.

Organizer	**Ph.D. Coordinator**
Prof. Virginio Cantoni	Prof. Paolo Di Barba

Seminar in English

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