Doctoral School of Information and Biomedical Technologies
Polish Academy of Sciences (TIB PAN)

SUBJECT:

Learning with imperfect teacher with application to GAN-based classification of partially labelled images.

SUPERVISOR:

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DESCRIPTION:

Control or decision systems often employ human operator whose actions depend on their experience. Modeling of such operators are hampered by problems with modeling operator's action based on his/her perception of images. Such problems are typical in decisions based on medical imaging, decision made by humans on industrial processes, etc. Human decisions may take so many factors into account that its complexity eludes modeling. On the other hand, human's decisions based on his/her perception of images lead to decisions that may be are biased and the actions of a system based on such decisions can be understood as based on an imperfect teacher. Moreover, not every decision of the expert should be used in simulations since the resulting decision may be unacceptably wrong.

One may analyze such problems by using a GAN system to separate relevant information and perturbations to be able to optimally exploit human's decisions. Parallelly, human's decisions can be assessed and unacceptable decisions can be rejected. In this way, for instance, unlabeled images can be correctly labeled.

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