Deep Learning Techniques and Algorithms – Problems and Applications

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This talk with provide an overview on the development and application of deep learning techniques at our research group during the recent years. First, special statistical feature extraction techniques based on the permutation entropy from the roller bearing vibration signals will be discussed in parallel with the description of the architecture of convolutional neural networks employed for the fault identification task. Next, the application of special ResNet architectures for automatic identification of concrete cracks will be discussed. Finally, the application of special fully convolutional U-Net models for the segmentation of digital images of nanostructures and bacteria on the surface of annealed thin films will be introduced.

Experience:

Prof. Ragulskis is a principal investigator at the Department of Mathematical Modelling, Kaunas University of Technology, and is heading the Center for Nonlinear Systems there. He has published more than 150 papers at International Journals and takes the Editorial positions at 10 International Journals. Prof. Ragulskis serves an invited expert at Research Executive Agency (European Commission), and as the member of the Science and Technology Panel (The Research Foundation Flanders, Belgium). He is a member of the Scientific Advisory Board, HeartMath Institute (USA), and takes the position of the Honorary and Guest Professor at several International Universities. His personal webpage: www.minvydasragulskis.com