KEYNOTE SPEAKER #4

Professor Dr. Filip Sroubek,
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Dr. Filip Sroubek received a B.S. degree and a M.S. degree in electrical engineering from the Czech Technical University, Prague, Czech Republic in 1996 and 1998, respectively. He received his Ph.D. degree in computer science from Charles University, Prague, Czech Republic in 2003. From 2004 to 2006, he was on a postdoctoral position in the Instituto de Optica, CSIC, Madrid, Spain. In 2010 and 2011, he was the Fulbright Visiting Scholar at the University of California, Santa Cruz. He received a prestigious national award (Wichterle premium) of the Academy of Sciences for young scientists in 2008.
He is currently with the Institute of Information Theory and Automation as the head of the Department of Image Processing and partially also with the Institute of Photonics and Electronics, where both institutes are part of the Academy of Sciences of the Czech Republic. His research covers all aspects of image processing, in particular, image restoration (denoising, blind deconvolution, super-resolution) and image fusion (multimodal, multifocus).
He is an author of 7 book chapters and over 80 journal and conference papers. In addition, he co-authored 6 tutorials presented at major international conferences (such as CVPR and ICIP). He is a member of IEEE and Czech Association for Cybernetics.

Title: Advances in blind image restoration

Image restoration, which estimates an image from degraded observations, has evolved considerably in the last 10 years. We rely on images with ever growing emphasis. Our understanding of the world is however limited by imperfect measuring conditions and devices used to acquire images. The talk will cover the main advances in blind deconvolution and superresolution. Deconvolution as an ill-posed nverse problem is one of the fundamental topics of image processing. The blind case, when the blur kernel is also unknown, is even more challenging and requires special optimization approaches to converge to the correct solution. Superresolution extends blind deconvolution by recovering lost spatial resolution of images. In the talk various real acquisition scenarios will be discussed together with proposed solutions for both blind deconvolution and superresolution and efficient numerical optimization methods, which allow fast implementation. Real data examples will illustrate performance of the proposed solutions.