Augmented Lagrangian method for ROF, vectorial TV and high order models

Dr Wu Chunlin  
Research Fellow  
School of Physical and Mathematical Sciences  
Nanyang Technological University

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In image restoration such as deblurring and denoising, the ROF, vectorial TV and high order models have been demonstrated to be very successful. However, as they are nonlinear and non-differential, these models are difficult to be efficiently solved by traditional methods such as gradient descent. In this talk, I will present augmented Lagrangian method applied to these models, which dramatically improve the computational efficiency. In our approach, the objective function of each iteration is separated into two sub-problems which can be solved via FFT or a closed form solution. Our method produces much better restoration results in a comparable cpu cost than some Matlab built-in functions.

Speaker Biography

Dr. Chunlin Wu got his Bachelor and Ph.D. degrees in University of Science and Technology of China in 2001 and 2006, respectively. He is now a research fellow in MAS, SPMS, NTU. Dr. Wu's research interests include computer graphics and image processing.

Host: Division of Mathematical Sciences, School of Physical and Mathematical Sciences