

# Department of Electronic Engineering

Selveraaju Murugesan

MEng, La Trobe

Room: BG410

Phone: +61 3 9479 2036

Email: [s.murugesan@latrobe.edu.au](mailto:s.murugesan@latrobe.edu.au)

## Research

Engineers who work with data obtained from the real world know that image signals do not exist without noise. Noise is added to the signal because of natural disturbances and errors during the data acquisition process. Thus noise removal is a pre-processing step for all image related applications. Image denoising methods remove the noise from the image to ease further image analysis and it should preserve the image features to produce a good quality output. The current research in this area denoises the corrupted image well but performs poorly in preserving some of the image features. If the image features are lost while improving the noise performance, then post processing of image will not yield the promising outcomes. Researchers are working on how to remove the noise from images without affecting the image features. This is a challenging problem since both the noise and useful signal are superimposed on each other in the image signal. Traditional noise removal techniques based on filters do not serve the purpose because of their incapability to differentiate noise from the useful signal. Traditional methods smooth the images which makes it harder to identify the image features such as edges. Also some filters remove particular type of noises and thus this approach is harder to implement. The wavelet domain helps to decompose the image signal using the filter banks and provides a basic tool to remove the noise from the useful signal. My research focuses on wavelet analysis of noisy image data and to develop an efficient algorithm through which noisy data are removed without affecting the image features.

