

Signal Processing for Preserving the Environment

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Abstract:

Signal processing has now had many benefits to our daily life though we may not be aware of. For examples: microprocessors (a kind of signal processor) are used to control gas consumption to make our cars more fuel efficient. and signal processing is used to predict the major weather changes.

Signal processing has played important roles in our environment including land water and air, through monitoring, control and prediction functions. In this presentation, the recent progress of signal processing, including hardware, software and algorithms, the neural networks, and the roles of remote sensing, will be reviewed first. This is followed by presenting several examples of using signal processing to preserve our environment. Some notable examples are: monitoring of landmines, pollutants in waterways, the salinity in the coastal zones, and the changes in environment; control of oil spills, flood mapping and control; inspection of damages of forest fires; prediction of major storms; et al. It is noted that signal processing is closely linked to pattern

recognition in many of these examples. Signal processing in conjunction with pattern recognition will play an increasingly important roles in all of these activities that aim to preserve our precious environmental resources.

With rapid progress in signal processors and signal processing techniques, many environmental problems can get better solutions. With collaborative efforts of all nations in the globe, and with the help of signal processing, we can predict that the environment can be preserved along with increased population growth and industrial development