



## REVIEW ON POWER SYSTEM HARMONICS ESTIMATION USING SIGNAL PROCESSING

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**ABSTRACT:** Signal processing is an enabling technology that encompasses the fundamental theory, applications, algorithms, and implementations of processing or transferring information contained in many different physical, symbolic, or abstract formats broadly designated as signals.<sup>[1]</sup> It uses mathematical, statistical, computational, heuristic, and linguistic representations, formalisms, and techniques for representation, modeling, analysis, synthesis, discovery, recovery, sensing, acquisition, extraction, learning, security, or forensics.<sup>[1]</sup> According to Alan V. Oppenheim and Ronald W. Schafer, the principles of signal processing can be found in the classical numerical analysis techniques of the 17th century. Oppenheim and Schafer further state that the "digitalization" or digital refinement of these techniques can be found in the digital control systems of the 1940s and 1950s.<sup>[2]</sup>



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### [1] Introduction

**Signal processing** is an enabling technology that encompasses the fundamental theory, applications, algorithms, and implementations of processing or transferring information contained in many different physical, symbolic, or abstract formats broadly designated as signals.<sup>[1]</sup>

#### Categories

##### Analog signal processing

Analog signal processing is for signals that have not been digitized, as in legacy radio, telephone, radar, and television systems. This involves linear electronic circuits as well as non-linear ones. The former are, for instance, passive filters, active filters, additive mixers, integrators and delay lines. Non-linear circuits include commanders, multiplications (frequency mixers and voltage-controlled amplifiers), voltage-controlled filters, voltage-controlled oscillators and phase-locked loops.

##### Continuous-time signal processing

Continuous-time signal processing is for signals that vary with the change of continuous domain (without considering some individual interrupted points).

The methods of signal processing include time domain, frequency domain, and complex frequency domain. This technology mainly discusses the modeling of linear time-invariant continuous system, integral of the system's zero-state response, setting up system function and the continuous time filtering of deterministic signals

##### Discrete-time signal processing

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