

# Feature selection algorithm based filter for the nerve localization

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**Abstract.** The application of Ultrasound-Guided Regional Anesthesia (UGRA) is growing rapidly in the medical field, and becomes a standard procedure in many worldwide hospitals. The aim of this work is to propose an automatic method to localize the nerve zone based on a novel feature selection algorithm, in order to assist anesthetists during the UGRA procedure. The nerve detection in the ultrasound images is a challenging task, since the noise and other artifacts corrupt the visual properties of such kind of echo pattern. To handle such patterns, numerous textural feature extraction methods are used to characterize these patterns. the nerve can be classified using the corresponding textural features. In the experiment, the results show that the proposed method can correctly and efficiently identify the nerve zone. A comparison with existing methods shows that the feature-selection capability of the proposed method is better then the stat of the art techniques based feature selection, the proposed feature selection algorithm achieves 82% for the first dataset and 61% fro the second dataset.

**Keywords:** feature extraction, feature selection, supervised learning, nerve detection, regional anesthesia