

## **On some image processing problems in medicine**

**A. Lundquist, O. Seleznev**

*Department of Mathematical Statistics  
Umeå University, SE-901 87 Umeå, Sweden*

Received April 9, 2002

Electromyography is the study of electrical nerve signals in muscles. Recent developments include measurement by surface electrodes. One problem with surface electrodes is that signals from different motor units are superpositioned at skin where the measurement takes place. The electrodes are positioned in a grid, so the measurements can be considered as a dynamic image. We apply image processing technique to solve recognition and classification problems, that is, to identify different motor units and separate their signals. This enables estimation of motor unit characteristics, for instance, the conduction velocity and firing rate, with further medical diagnosis applications.