Accurate and effective method to smoothen grasping force signal of glovemap using gaussian filter

Abstract

This paper presents the use of Gaussian filtering method to smoothen the grasping force signals by using computational Gaussian Algorithm. The finger grasping force signals are measured using a low cost DataGlove called "GloveMAP" which is based on fingers adapted force grasping movement. Gaussian filter computational algorithm is designed to reduce / eliminate the overshoot signal and suitable to be used for filtering grasping force input signals while minimizing the rise and fall time of the grasping object. In grasping force identification, we are provided with a collection of grasping force data using several objects whereas three main fingers involve in this study. The experimental results showed that the distinguishing between thumb, index and middle fingers grasping force signals and represent the force for an appropriate manipulation of the grasping object.

Keywords

Finger grasping; Gaussian algorithm; Gaussian filtering; Grasping force identification; Grasping object