

{tag}

{/tag}

IJCA Proceedings on National Symposium on  
Modern Information and Communication Technologies for Digital India

© 2016 by IJCA Journal

MICTDI 2016 - Number 3

Year of Publication: 2016

Authors:

Neha Hooda

Chandni Ahuja

Ratan Das

Neelesh Kumar

{bibtex}mictdi201621.bib{/bibtex}

## **Abstract**

There are several methods available for EMG(Electromyography) based user intent detection,

wherein muscle activation has been recognized by different approaches. Even though EMG detection and processing has been done by many other researchers, need of improved model is still rising. The notion of this study is to propound a novel approach whereby quantification of EMG signal for foot flexion can be done. Signal processing and data analysis, played substantial role in that, thus present study had used contemporary frequency analysis methodology. The Biopac's software tool, Acqknowledge, was explored for the purpose and the results obtained were quite precise. Further to increase its reliability, analysis was performed over data samples of more than 10 subjects.

## Refer

## ences

- J. R. Cram, G. S. Kasman, and J. Holtz, "Introduction to Surface Electromyography," Aspen Publishers Inc. ;Gaithersburg, Maryland, 1998.
- R. F. M. Kleissen, J. H. Buurke, J. Harlaar, and G. Zilvold, "Electromyography in the biomechanical analysis of human movement and its clinical application," Gait Posture 1998; vol. 8, pp. 143-158.
- S. Srivatsan, X. Hu, B. Jeon, A. K. Suresh, W. Z. Rymer and N. L. Suresh, "Power Spectral Analysis of Surface EMG in stroke: a preliminary study," 6th Annual International IEEE EMBS Conference on Neural Engineering, San Diego, California, Nov. , 2013.
- Y. Nakamura, M. Tsuruike, and T. S. Ellenbecker, "Electromyographic Activity of Scapular Muscle Control in Free-Motion Exercise," Journal of Athletic Training, In-Press.
- R. C. G. Dorneles, H. L. da R. Oliveira, M. L. de A. Bergmann, and G. G. Bergmann "Flexibility and muscle strength/resistance indicators and screening of low back pain in adolescents," J. of Rev. Bras. Cineantropom. Desempenho Hum, vol. 18, pp. 93- 102, 2016.
- G. Mostile, J. P. Giuffrida, O. R. Adam, A. Davidson, and J. Jankovic, "Correlation between Kinesia system assessments and clinical tremor scores in patients with essential tremor," Journal of Mov Disord. , vol. 25, pp. 1938-43, 2010.
- S. Ferguson, G. R. Dunlop, "Grasp Recognition From Myoelectric Signals," Proc. of Australasian Conference on Robotics and Automation; pp. 83-87, Auckland, Nov. , 2002.
- V. Stanford, "Biosignals offer potential for direct interfaces and health monitoring," IEEE Pervasive Computing, vol. 3, pp. 99-103, 2004.
- D. G. Park, and H. C. Kim, "Muscleman: Wireless input device for a fighting action game based on the EMG signal and acceleration of the human forearm," accessed via: [[www.intuinno.com/uploads/1/0/2/9/10297987/muscleman\\_paper.pdf](http://www.intuinno.com/uploads/1/0/2/9/10297987/muscleman_paper.pdf)].
- A. Phinyomark, S. Thongpanja, H. Hu, P. Phukpattaranont and C. Limsakul, "The Usefulness of Mean and Median Frequencies in Electromyography Analysis," Computational Intelligence in Electromyography Analysis –A Perspective on Current Applications and Future Challenges, vol. 8, pp. 95-220, 2012.

## Index Terms

Computer Science

Signal Processing

**Keywords**

Emg(electromyography) Frequency Analysis Foot Flexion Mean Frequency Muscle Activation.