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REVIEWER No. 3 : Comments to Authors

Manuscript No. 15

Title : Towards Adaptive Hand Prosthetics
Authors : C. Castellini, E. Gruppioni, A. Davalli, G. Sandini
Version : (05.03.2009)

Comments to authors: (Please continue on additional sheet if necessary.)

The authors have submitted a manuscript about an interesting topic but some aspects should be elaborated with more care for a peer reviewed journal paper. This manuscript does not deliver enough information about the experiments that have been performed. I recommend major changes in the manuscript before considering it for publication.

- The authors definitely should review the state of the art of hand prostheses and algorithms for EMG control more in detail to give the reader an insight in the field. This very short introduction is not satisfactory. Which hand prostheses are available ? The Karlsruhe hand, for example, is missing. What about the results of the Utah group and the Pisa group (which was also in the Neurobotics consortium) ?
- Please describe the "standard position" of the electrodes. This a necessary information for a scientific paper. Why don't you look for the maximum amplitude. Is this due to clinical or due to other reasons? Are these positions related to the placement of electrodes in OTTO BOCK sockets for the prostheses ?
- Which muscles were addressed ? Is this of importance for the performance and the results ?
- If you refer to literature (Supervised learning models in II C), please cite some
- Which grasp types should be differentiated in R5 ?
- How did you "feed" the data in the PCA ? How many data any further data preprocessin ? What about AD converting ? Rectification, Amplification . More details are required !
- The complete description of the signal processing is not sufficient. Which kind of kernel did you use in the SVM ? How do the classes look like ? Do you feed all components into the SVM ? What about false positives ?
- Some data are delivered in the results section but this is data necessary in the materials and methods section. The manuscript should be re-structured in a clear (and didactic) way.
- Figure 4: is this the noise of the electrodes or the noise spectum of the EMG signal; not clear.
- Figure 5: "Figure 5 shows the results, according to each subject and modality." Even with the further description, the content of the figures and results is not described in an adequate manner.
- Discussion and Conclusion section: Please work out the level of amputation on the performance in general and in your application in detail.
- All graphs in the figures are too small. Information cannot be gathered out of it at 100 % magnification.
- Axis description of all figures are too small and cannot be read. Please make them larger, at least 8 points size. Include axis descriptions in all figures and add units.
- The reference list is quite short. There seems to be a lack of full journal articles to be looked for. Please have a careful search and include more substantial references. Eight references of journal articles and the rest of websites and proceedings is not sufficient.