Homework 3 – Stating Problems, Drafting

Due Feb 24, 2008

ECE 667 – Technical Communications in English

Spring 2008

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Please review Lecture 4 "Stating Problems" and Lecture 5 "Drafting, Word Processing". Then complete the exercises below.

Exercise - Please read the following abstract. Clearly write about the following items:

A. **Problem -** What is the problem being presented?
   a. What is the A term, the B term, and why are they conflicting? If either term is implied (it is obvious and not stated), explicitly state the missing term.
   b. Clearly write the sentence or sentences you feel state the problem.
B. **Questions -** State at least 5 questions that the problem statement generates for the reader.
C. **Strategy –** For each question you created above, state a strategy. Indicate which strategy the writer ultimately chooses to present.
D. **Purpose –** What is the purpose or purposes of the article.
E. **Drafting –** If you were the author of the abstract, please create an outline of what the rest of the article may have looked like. Make your outline as complete as possible. Include sections and subsections, and briefly describe what would be stated in each part.

Abstract –

Title:
Controlling the false positive detection rate in fuzzy clustering of fMRI data

Journal Name:
Biomedical Imaging: Macro to Nano, 2004. IEEE International Symposium on

Abstract:
Despite its potential advantages for fMRI analysis, fuzzy C-means (FCM) clustering suffers from limitations such as the need for a priori knowledge of the number of clusters, and unknown statistical significance and instability of the results. We propose a randomization-based method to control the false positive rate and estimate statistical significance of the FCM results. Using this novel approach, we develop an fMRI activation detection method. The ability of the method in controlling the false positive rate is shown by analysis of false positives in activation maps of resting-state fMRI data. Controlling the false positive rate in FCM allows comparison of different fuzzy clustering methods, using different feature spaces, to other fMRI detection methods. In this paper, using simulation and real fMRI data, we compare a novel feature space that takes the variability of the hemodynamic response function into account (HRF-based feature space) to the conventional cross-correlation analysis and FCM using the cross-correlation feature space.

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