Quantitative Biology > Quantitative Methods

Computational Diagnosis of Canine Lymphoma

E. M. Mirkes, I. Alexandrakis, K. Slater, R. Tuli, A. N. Gorban

(Submitted on 21 May 2013)

One out of four dogs will develop cancer in their lifetime and 20% of those are lymphoma. Pet-Screen has developed a lymphoma diagnostic test which examines the levels of two biomarkers. This method of can be used not only for diagnostics but for screening and remission monitoring as well. The classification problem to diagnose lymphoma was initially formulated and then it was refine to problem of lymphoma risk estimation. We use three methods of classification and risk estimation to create the diagnostic system. The best data mining approaches are selected for the estimation of lymphoma risk probability. These methods are implemented into special web-accessed software. For the differential diagnosis, the best solution based on the given database collected by PetScreen has, for the clinically suspected patients, sensitivity 83.5%, and specificity is 77% (three input features, two biomarkers and a standard clinical symptom). For the screening task, the best result is obtained by the decision tree which also uses three input features. The sensitivity of this screening method is 81.4% and specificity is >99%.

Comments: 6 pages
Subjects: **Quantitative Methods (q-bio.QM)**; Applications (stat.AP)
Cite as: **arXiv:1305.4942 [q-bio.QM]**
(or **arXiv:1305.4942v1 [q-bio.QM]** for this version)