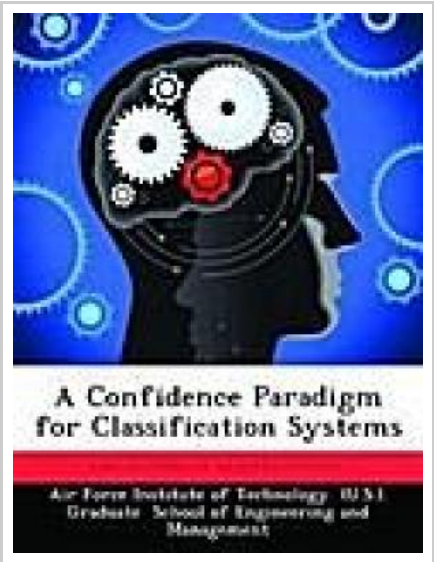

A Confidence Paradigm for Classification Systems

By Air Force Institute of Technology (U. S.). Graduate School of Engineering and Management

Bibliioscholar Sep 2012, 2012. Taschenbuch. Book Condition: Neu. 246x189x12 mm. This item is printed on demand - Print on Demand Neuware - There is no universally accepted methodology to determine how much confidence one should have in a classifier output. This research proposes a framework to determine the level of confidence in an indication from a classifier system where the output is or can be transformed into a posterior probability estimate. This is a theoretical framework that attempts to unite the viewpoints of the classification system developer (or engineer) and the classification system user (or war-fighter). The paradigm is based on the assumptions that the system confidence acts like, or can be modeled as a value and that indication confidence can be modeled as a function of the posterior probability estimates. The introduction of the non-declaration possibility induces the production of a higher-level value model that weighs the contribution of engineering confidence and associated non-declaration rate. Now, the task becomes to choose the appropriate threshold to maximize this overarching value function. This paradigm is developed in a setting considering only in-library problems, but it is applied to out-of-library problems as well. Introduction of out-of-library problems requires expansion of the overarching...

Reviews

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