

Improved Dynamic Bayesian Networks Applied to Arabic On Line Characters Recognition

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Abstract : Work is in on line Arabic character recognition and the principal motivation is to study the Arab manuscript with on line technology. This system is a Markovian system, which one can see as like a Dynamic Bayesian Network (DBN). One of the major interests of these systems resides in the complete models training (topology and parameters) starting from training data. Our approach is based on the dynamic Bayesian Networks formalism. The DBNs theory is a Bayesians networks generalization to the dynamic processes. Among our objective, amounts finding better parameters, which represent the links (dependences) between dynamic network variables. In applications in pattern recognition, one will carry out the fixing of the structure, which obliges us to admit some strong assumptions (for example independence between some variables). Our application will relate to the Arabic isolated characters on line recognition using our laboratory database: NOUN. A neural tester proposed for DBN external optimization. The DBN scores and DBN mixed are respectively 70.24% and 62.50%, which lets predict their further development; other approaches taking account time were considered and implemented until obtaining a significant recognition rate 94.79%.

Keywords : Arabic on line character recognition, dynamic Bayesian network, pattern recognition, computer vision

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