CONDITIONAL U-STATISTICS WITH APPLICATIONS IN DISCRIMINANT ANALYSIS, ARMA PROCESSES AND HIDDEN MARKOV MODELS

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Abstract: Stute (Ann. Probab. (1991), Ann. Statist. (1994)) introduced a class of conditional U-statistics which generalize the Nadaraya-Watson estimate of a regression function. Under the usual iid set-up, Stute proved the asymptotic normality, weak and strong consistency and the universal consistency of the estimate in the *r*th mean. Here we extend Stute's results from the independent case to the dependent case. Applications to discriminant analysis, ARMA processes and hidden Markov models are provided. The work is in collaboration with Professor Michel Harel (C.N.R.S. Toulouse, France).