1106-41-57 **George Anastassiou*** (ganastss@memphis.edu), University of Memphis, Department of Mathematical Sciences, Memphis, TN 38152. *Multivariate error function based neural network approximations.* Preliminary report.

Here we present multivariate quantitative approximations of real and complex valued continuous multivariate functions on a box or $R^N$, $N \in N$, by the multivariate quasi-interpolation, Baskakov type and quadrature type neural network operators. We treat also the case of approximation by iterated operators of the last three types. These approximations are derived by establishing multidimensional Jackson type inequalities involving the multivariate modulus of continuity of the engaged function or its high order partial derivatives. Our multivariate operators are defined by using a multidimensional density function induced by the Gaussian error special function. The approximations are pointwise and uniform. The related feed-forward neural network is with one hidden layer. (Received June 04, 2014)