1135-VF-843 **Hansapani S Rodrigo*** (hansapani.rodrigo@utrgv.edu) and **Chris P Tsokos** (ctsokos@usf.edu). *Bayesian Artificial Intelligence Neural Networks for Nonlinear Poisson Regression and Survival Modeling.*

With the inspiration originated from biological neuron system, Artificial neural networks (ANN) models are efficiently used for nonlinear modeling. It has been shown that the Bayesian treatment of the ANN provides better prediction accuracies in regression modeling as it avoids the network overfitting associated with maximum likelihood approach. Moreover, Bayesian treatment can be used to identify the relative importance of predictor variables and to determine the effective model complexity utilizing the limited amount data in hand. By incorporating these Bayesian treatments, we have developed a novel nonlinear Poisson regression model using ANN assuming that the log of the expected value of the count responses is nonlinearly related with the predictors. The prediction accuracy of our proposed Poisson regression model has been evaluated using a simulation study. We have utilized this to obtain the survival prediction of lung cancer patients. This was achived by extending our ANN model to create a piecewise constant hazard model. (Received September 15, 2017)