World Academy of Science, Engineering and Technology
International Journal of Electrical and Computer Engineering
Vol:9, No:01, 2015

Regression Model Evaluation on Depth Camera Data for Gaze Estimation

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Abstract : We investigate the machine learning algorithm selection problem in the term of a depth image based eye gaze estimation, with respect to its essential difficulty in reducing the number of required training samples and duration time of training. Statistics based prediction accuracy are increasingly used to assess and evaluate prediction or estimation in gaze estimation. This article evaluates Root Mean Squared Error (RMSE) and R-Squared statistical analysis to assess machine learning methods on depth camera data for gaze estimation. There are 4 machines learning methods have been evaluated: Random Forest Regression, Regression Tree, Support Vector Machine (SVM), and Linear Regression. The experiment results show that the Random Forest Regression has the lowest RMSE and the highest R-Squared, which means that it is the best among other methods.

Keywords : gaze estimation, gaze tracking, eye tracking, kinect, regression model, orange python
Conference Title : ICECECE 2015 : International Conference on Electrical, Computer, Electronics and Communication Engineering
Conference Location : Singapore, Singapore
Conference Dates : January 08-09, 2015