



COLLEGE of ENGINEERING AND PHYSICAL SCIENCES

SCHOOL OF COMPUTER SCIENCE

MSc Seminar

Thursday March 2, 2023 at 1:30pm in Reynolds 1101

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*Confession Networks: Boosting Accuracy and
Improving Confidence in Predictions for Classification*

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Advisory: Dr. Rozita Dara

Abstract:

In this project, we propose a novel method for measuring the confidence of neural networks in classification problems. There are existing statistical approaches to measure neural network confidence for classification. However, in this project, we propose a new loss function such that the neural network signals the amount of confidence it has for its prediction, independent of the prediction itself. The first goal of this project is to design an appropriate loss function to output a confidence measure along with classification scores for neural networks.

A second goal is to examine whether such a loss function can improve network performance. There are many applications where a confidence measure is important, including autonomous driving to ensure that the predictions relating to the area around the vehicle are correct or in important medical diagnostic decisions. We demonstrate that the proposed approach both improves prediction accuracy and also provides a valuable output for gauging the confidence of the prediction.