1. Title

Actionable Visual Interpretation and Diagnosis for Deep Learning Models

2. Abstract

There is an increasing tension between the interpretability and prediction power of machine learning models, especially for deep learning models. Many visual analytics research has attempted to mitigate this tension by interpreting and diagnosing deep learning models (e.g. CNN, RNN, and GANs) in various domains (e.g. computer vision, natural language, and robotics). Here, one burning need is to generate actionable insights to improve models with human knowledge. In this talk, I present two research work of generating and injecting insights for model improvement via visual interpretation and diagnosis: a) By injecting human insights to model space, DQNVis helps domain experts understand and improve deep Q-learning networks for Atari games; b) Through insight injection into data space, VALTD assists model developers assess, understand, and improve the accuracy and robustness of traffic light detectors in autonomous driving. Hopefully, the two work can capture a silver of ways of generating and applying actionable insights for model improvement via visual analytics and human-in-the-loop approaches.

3. Short bio of you

Liang Gou is a Principal Research Scientist and Senior Research Manager at Research and Technology Center North America, Robert Bosch LLC. His research interests lie in the fields of visual analytics, deep learning and human-computer interaction. He is leading a Visual Analytics & eXplainable AI group to shape the future industrial AI experience for Robert Bosch products and services by combining cutting-edge technologies of machine learning, data analysis and interactive visualization. Prior to joining Bosch Research, Liang was a Principal Research Scientist at Visa Research and a Research Staff Member at IBM Almaden Research Center. He received his Ph.D. in Information Science and Technology from the Penn State Univ. He received multiple best paper awards or honorable mentions at IEEE VIS and Pacific Vis. He was the Papers Co-Chair for the IEEE Symposium on Visualization in Data Science in 2020, and has been the EiC assistant of ACM TiiS since 2018.