

CMPT 733 Big Data Science - Template for Capstone Project Idea

Object detection in x-ray images

Description

Items of interests must be identified by the computer automatically by a computer in x-ray images of packages and baggage.

The items of interest are: firearms, knives, and firearms parts.

The detection can be done by either identifying the object with a bounding box in the image, or by isolating the images with the item of interest.

Students are expected to use multiple algorithms and libraries, train multiple models, and report on comparative performance of each one.

Students are invited to use transfer learning and leverage libraries such as FastAI, but alternative framework are welcome.

Performance of the models should be described by their accuracy and recall scores, but it should also include a time performance factor in the application of the model (i.e. applying the deployed model uses on average x fraction of a second).

Usage of open source programming languages and libraries are encouraged.

Datasets

Students will be invited to use the SIXray data set (academic data) as well as potentially additional images that will be made available to them.

SIX Ray contains 60gigs worth of x-ray images from the Beijing subway.

Additional images will be provided depending on their availability.

Contact person

Mathieu Barsalou: Mathieu.Barsalou@cbsa-asfc.gc.ca

Contributor of the Project Idea



Please send the filled template to Jiannan Wang at jnwang@sfu.ca.