Google's Online Handwriting Recognition and Quick Draw

Abstract:

If a person is asked to draw a cat, one would probably draw a body with a tail or just a head with pointy ears, eyes, nose and whiskers. We develop abstract concepts of what we see, like a bus is a metal box with windows, a door and wheels. Also to understand what a person draws, we don't just look at what the person drew, we also look at how they actually drew it, which order the stroke were made in, what was the shape of each stroke. Each object is a set of features, not a grid of pixels. Instead of the more traditional methods for recognizing objects or characters from pixel images, Quick draw takes as input a sketch made by the user (so it has the information of x and y coordinates for each point along with the time each point was drawn on) and tries to guess, online, what the person is drawing. Quick Draw uses some of the same technologies used by Google's online handwriting recognition for touch enabled devices. We will explain how Google's online handwriting recognition works (this being a little different but a more complex problem). We will explain in brief what neural networks are, how an input set of points is segmented to form a characters lattice (which is a graph of possible character hypotheses), what features are extracted from these segments, how each segment in this graph is classified using feed forward neural neural networks (using different point wise and global features extracted from the input) and an overview of how these neural networks are trained.

Team:

Abhishek Varghese 160010018

Gaurav Aidasani 160010004

Nitish Shah 160030005