Chapter 71
How Games Improve Language in People With Language Dysfunctions

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ABSTRACT

Many people as they age face a greater challenge of muscular dexterity around their facial muscles. This results in difficulty producing certain sounds, and sometimes the problem is so severe that they are unintelligible. People who could benefit from the methods in this chapter are those who are hard of hearing and do not have feedback readily accessible and people with ALS. This chapter describes a method that uses a computer learning algorithm that predicts what people are about to say based on earlier content and learns what the natural sound of their voice sounds like. This chapter illustrates speech trajectory and voice shaping. Clear Audio is a biologically inspired framework for studying natural language. Like the story behind Jurassic Park, Clear Audio attempts to make predictions about data from existing data, inspired by biological processes. Its main goal is to give feedback for speech pathology purposes.

INTRODUCTION

In order to comprehend meaning in a sentence the software must recognize a bit of language sound or phoneme meaning the software must then predict sentence trajectory of what is to come. In a word with more digital data than ever before, each word is a trap door to another set of meanings. Words are fossils of another time and another place brought back to evoke sentiment including thoughts or feelings of previous experiences. For example, in a paragraph that mentions "snow" denotes that the paragraph is about snow. Lieberman argues that the brain is always in the mode of social communications and that it does not turn off. Lieberman argues that although a person is not born with social mechanisms in place he or she quickly develops social capacity as the brain adapts to its environment. The human needs 10,000 hours' practice to become an expert in a specialty. The brain achieves this social learning

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by age ten (Lieberman, 2011). The Second Machine Age argues that while computers are not capable of doing anything other than what a human tells them to do, if they have an exact enough feature set, they are better than humans at determining how the proper order of events. One process is modeled by the Zachman framework of asking who, what, when, and why. For example, the Google Chafer project, a project to designed a computer to drive a car. The feature set was as good as of 2014 the car had only two accidents, one of which was rear ended at a stop light. Should the Zachman framework be used in natural sentence processors such as our Clear Audio Project can predict as some critics of natural language processing say, predict the surprising punch line of Grandpa's unpredictable jokes. Filters become more essential with the growing field of data mining and big data. Recently Google and Apple (Siri) released new versions of speech recognition in Google Now and IOS 6. These represent the best of today's big data. Traditionally data scientists compare the concept of big data to a big hard drive full of stuff that the scientists process. However, as this big pile of data grows the only people who are able to sort it have many hundreds of processor cores. Jeff Stibel points out that large internet-based companies have their servers based in cheap places to get electricity (Stibel, 2014). Cnet, in their review of IOS Maverick, claims that the catch or the storage of internet files on the macs is overbearing. Worse is the concern that having even anonymous data can have legal implications because people with unique conversations would stand out in a crowd. Aiden explains how almost in a decade worth of Google searches some queries stand out (Aiden, 2013). Particular phrases such as idioms from cultural minorities can distinguish a person's conversation. This predicament reveals a required feature set. Data without a feature set is useless. Mathematics is defined by The Oxford Dictionary as "the abstract science of number, measure, and space." Language and mathematics share the definition as being omnipresent, constant, without regards to feelings or sentiments. People argue that language is more chaotic.

Fortunately, mathematics offers fractals such as the Mandelbrot Fractal shown above to help people understand complexity and chaos in simple terms. Computers can find similarities in pictures without knowing what they are. Recently Peter Norvig of Google gave a talk to Brown University about memorization or a way that the computer can know what an image consists of although it may not know the

Figure 1. Shows a computer rendering of the Mandelbrot fractal (credits go to Wikimedia)