

Project Proposals – Aaron Lopes

Author Syntax Machine Learning

Write in the style of a certain author. Given the name of any author, the program will generate any given number of legible paragraphs written in similar diction and prose of the author. Data would be aggregated from texts of varying authors available online. This can be accomplished through some sort of amalgamation of natural language processing models and generative artificial networks. The Wolfram Language would be used to develop and train the Natural Language Processing algorithms, as well as generate the blocks of texts. I believe this project is inherently innovative as it could provide insight to the reason why certain authors are more successful than others, as could be reasoned from the generated data and the patterns it will show.

Genetic Learning to Play Poker

The uncertainty and unsolved nature of Texas Hold 'Em Poker makes the game a perfect target for the application of evolutionary learning. There are certain statistical aspects of Poker which a computer could become better at solving, such as hand strength, opponent modeling, and managing risk. Data would be aggregated from opponents past moves, and decisions could be made based on probabilistic models (Bayesian Networks, Brownian Motion, etc.). The Wolfram Language could be used to build the Poker GUI, as well as training a genetic model to play the game itself (against the computer). I believe this project is innovative as it could provide more insight into what makes an optimal poker player and

Sentiment Analysis to Provide Summaries of Higher Accuracy

Websites which provide summaries of texts usually involve removing simple words/pronouns and accounting for simple grammar errors, but usually result in shortened texts which do not provide the full intended context of the original written piece. The goal of this project would be to provide better summaries through the application of NLP and GANs. The hope would be to recognize the general sentiment of the

text (i.e. positive, negative, or neutral) and provide a summary which would mirror the intended effect of the text. The Wolfram Language would be used to write the algorithms, take the text input (PDF, URL, or plain text) and provide the summary. The innovation of this project lies in the projected increase in efficiency it would provide for skimming through long papers or blocks of text while attempting to retain all of the information provided.