**CS180 Machine Problem**

**Title: ANNdroid Invasion**

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1. **Title and Goal**

Our project is entitled ANNdroid Invasion. It is a game application where players are engaged in a quiz bee type of game having Artificially Intelligent Agents named ANNdroids (AI) as opponents. Our main goal is to provide an alternative venue for students to assess their learning on particular topics in a both challenging and enjoyable way and at the same time, it is also a way for the teachers to see and keep track of their students performance.

1. **Implementation**
2. **Data Gathering**

(e.g. We recorded ten 2-second speech from each of the three subjects; they speak the word “mama” for all the voice recording)

1. **Preprocessing**

(e.g. We removed background noises by sound cancellation of recorded background sound. We also modulated the amplitude of all recordings to match each other.)

1. **Feature Selection**

(e.g. We used sound amplitudes as features to train our ANN)

1. **Training**

(e.g. Our ANN is configured as follows: … the learning rate gradually decays through time.)

1. **Results**

(e.g. We tested our ANN using a separate dataset which are randomly picked and not used during training. Test result shows 85% accuracy)

1. **Demonstration**

To run the application, unzip the folder. Open the command line and go to the MP180 directory. Then do the following commands:

**For Windows Users:**

**Option a:** type ‘javac ANNdroid/src/\*.java’ to compile then ‘java ANNdroid.src.ANNdroid’ to run the program.

**Option b:** type ‘./compile.bat’ to compile then ‘./run.bat’ to run the program.

**For Unix Users:**

**Option a:** type ‘javac ANNdroid/src/\*.java’ to compile then ‘java ANNdroid.src.ANNdroid’ to run the program.

1. **Discussion of Criteria**
2. **Difficulty (Justify coding, knowledge and data set)**
3. **Topics (Enumerate topics involved)**

The topics that we used in developing our software applications are:

1. Artificial Neural Networks (ANN) for the learning of the ANNdroids (AI)
2. Naïve Bayes Classified for getting the expected performance of a player. We feed the output of this as input to the ANN to train the ANNdroids (AI) to a certain accuracy which is a bit higher than the student’s expected performance.
3. Informed Searching, specifically A\* search, is used in showing a player’s movement from one territory to another territory during the selection of subject to take phase.
4. **Problem (Justify relevance, interestingness, and ingenuity)**