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//
// MLSearch.h
// Sonence
//
// Created by Benjamin Yu on 2013-02-23.
//
//

#ifndef __Sonence__MLSearch__
#define __Sonence__MLSearch__

#include <iostream>

class MLSearch {
public:
    MLSearch();
    ~MLSearch();
    double logistic(double x, double alpha, double beta, double gamma, double
        lambda);
    double invLogistic(double p_target, double alpha, double beta, double gamma,
        double lambda);
    double getNextTone(double x, int channel, bool hit);
    void setMode(int mode);

    int cur_freq = 0;

private:
    static const int numOfChannels = 2;
    static const int numOfAlphas = 300; // Mean value
    static const int numOfGammas = 5; // False-alarm rate
    static const int numOfFrequencies = 10;

    double beta = 1.0; // Beta - Psychometric Slope
    double lambda = 0.0; // Lambda - Expectation of attention lapses
    double stepSize = -0.1;

    int mode = 0;
    bool prevMode = true;
    int hitCount = 0;

    double probTable[numOfChannels][numOfFrequencies][numOfAlphas][numOfGammas];
    double freqValues[numOfFrequencies];
    double alphaValues[numOfAlphas]; // Mean value
    double gammaValues[numOfGammas]; // False-alarm rate

    double stepSizes[numOfFrequencies] = {-0.1,-0.1,-0.1,-0.1,-0.1,
        -0.1,-0.1,-0.1,-0.1,-0.1};
};

#endif /* defined(__Sonence__MLSearch__) */

```