**A-Small-Image-Processing-Library**

**Documentation**

**Libraries**

* Activation Functions**-** #include “activation.h”

1. **relu-** returns a matrix of max(0, element) for each element of input matrix. Accepted input data types are {int, float}. Output data type is corresponding to input data type.

Syntax: vector<vector<{int, float}>> ans = relu(vector<vector<{int, float}>> matrix);

1. **tanh-** return a matrix of tan hyperbolic of each element of input matrix. Accepted input data types are {int, float). Output data type is always float.

Syntax: vector<vector<float>> ans = tanh(vector<vector<{int, float}>> matrix);

1. **sigmoid-** returns a vector after applying sigmoid function on each element of input vector. Both input and output data types are float.

Syntax: vector<float> ans = sigmoid(vector<float> arr);

1. **softmax-** returns a vector after applying softmax function on the input vector. Both input and output data types are float.

Syntax: vector<float> ans = softmax(vector<float> arr);

* Padding Function**-** #include “padding.h”

Returns a matrix after applying a padding layer of specified pad size on the input matrix. Default pad size is 1 if pad size is not provided. The accepted input data type of matrix is int or float, and correspondingly the output data type is also int or float. The data type of padSize is int.

Syntax: vector<vector<{int, float}>> ans = pad(vector<vector<{int, float}>> matrix, padSize);

* Pooling Function**-** #include “pool.h”

1. Average Pool- returns average pool of input matrix. Default filter size and stride is 2. The accepted input data type of matrix is int or float, and correspondingly the output data type is also int or float. The data type of fliterSize and stride is int.

Syntax: vector<vector<{int, float}>> ans = avgPool(vector<vector<{int, float}>> matrix, int filterSize = 2, int stride = 2 );

(b) Max Pool- returns max pool of input matrix. Default filter size and stride is 2. The accepted input data type of matrix is int or float, and correspondingly the output data type is also int or float. The data type of fliterSize and stride is int.

Syntax: vector<vector<{int, float}>> ans = maxPool(vector<vector<{int, float}>> matrix, int filterSize = 2, int stride = 2 );