

## Nearest Neighbor():

- It takes three arg as input:
    1. the image path
    2. output image width
    3. output image height
  - It returns nothing.
1. First it calculates the scaling ratio between the input image and desired image
  2. Then it scales the original image by multiplying its indexes by the scaling ration
  3. Then save the output image

## BilinearInterpolation ():

- It takes three arg as input:
  1. the image path
  2. output image width
  3. output image height
- It returns nothing.

It uses the surrounding pixels to predict pixel value

1. First it calculates the scaling ratio
2. Then we get the four points where the two lines from x-axes and the two lines from y-axes are meeting  
From these four points, I calculate the value for that pixel
3. It saves the output image







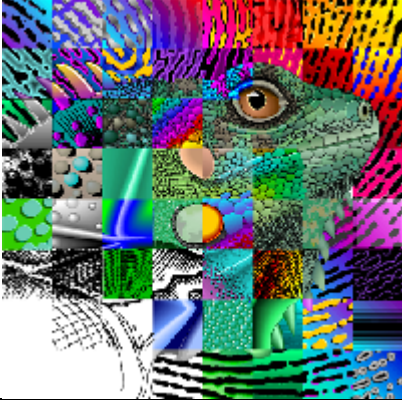
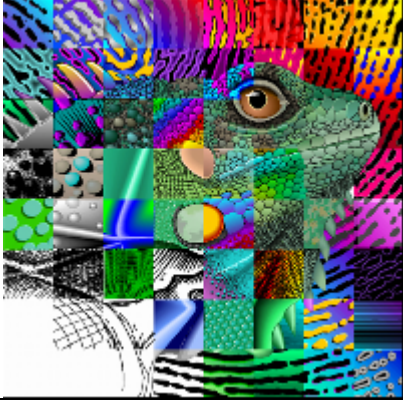
## multi():

Helping function to do multiplication on RGBA struct

- It takes two arg as input:
    1. the RGBA pixel
    2. the value we want to multiple with the RGBA
  - It returns RGBA pixel
1. It accesses the 3 channel in the pixel the R,G and B
  2. Then it multiplies each one with the value
  3. then returns new RGBA

## RESULT

The NN algorithm displays a jagged texture while the BL algorithm displays a soft texture. The first image, the image resampled with NN interpolation, tends to look sharper than the second image, the image is taken from resampling with BL interpolation. In terms of time, the NN algorithm is faster than the BL algorithm. In terms of image, BL algorithm has obtained clearer results than NN algorithm.

NEAREST NEIGBOR	BILINEAR	RUNNING TIME
200x200		
		<pre>Microsoft Visual Studio Debug Console The NearestNeighbor Interpolation successfully. NearestNeighbor function toke: 111  The Bilinear Interpolation successfully. BilinearInterpolation function toke:154</pre>
		<pre>Microsoft Visual Studio Debug Console The NearestNeighbor Interpolation successfully. NearestNeighbor function toke: 93  The Bilinear Interpolation successfully. BilinearInterpolation function toke:136</pre>
		<pre>Microsoft Visual Studio Debug Console The NearestNeighbor Interpolation successfully. NearestNeighbor function toke: 106  The Bilinear Interpolation successfully. BilinearInterpolation function toke:129</pre>
		<pre>Microsoft Visual Studio Debug Console The NearestNeighbor Interpolation successfully. NearestNeighbor function toke: 108  The Bilinear Interpolation successfully. BilinearInterpolation function toke:146</pre>

NEAREST NEIGBOR	BILINEAR	RUNNING TIME
100 x 100		
		<pre> C:\&gt; Microsoft Visual Studio Debug Console The NearestNeighbor Interpolation successfully. NearestNeighbor function toke: 65  The Bilinear Interpolation successfully. BilinearInterpolation function toke:78 </pre>
		<pre> C:\&gt; Microsoft Visual Studio Debug Console The NearestNeighbor Interpolation successfully. NearestNeighbor function toke: 71  The Bilinear Interpolation successfully. BilinearInterpolation function toke:80 </pre>
		<pre> C:\&gt; Microsoft Visual Studio Debug Console The NearestNeighbor Interpolation successfully. NearestNeighbor function toke: 65  The Bilinear Interpolation successfully. BilinearInterpolation function toke:74 </pre>
		<pre> C:\&gt; Microsoft Visual Studio Debug Console The NearestNeighbor Interpolation successfully. NearestNeighbor function toke: 67  The Bilinear Interpolation successfully. BilinearInterpolation function toke:72 </pre>

NEAREST NEIGBOR	BILINEAR	RUNNING TIME
50 x 50		
		<pre> C:\&gt; Microsoft Visual Studio Debug Console The NearestNeighbor Interpolation successfully. NearestNeighbor function toke: 52  The Bilinear Interpolation successfully. BilinearInterpolation function toke:60 </pre>
		<pre> C:\&gt; Microsoft Visual Studio Debug Console The NearestNeighbor Interpolation successfully. NearestNeighbor function toke: 58  The Bilinear Interpolation successfully. BilinearInterpolation function toke:63 </pre>
		<pre> C:\&gt; Microsoft Visual Studio Debug Console The NearestNeighbor Interpolation successfully. NearestNeighbor function toke: 53  The Bilinear Interpolation successfully. BilinearInterpolation function toke:92 </pre>
		<pre> C:\&gt; Microsoft Visual Studio Debug Console The NearestNeighbor Interpolation successfully. NearestNeighbor function toke: 66  The Bilinear Interpolation successfully. BilinearInterpolation function toke:65 </pre>

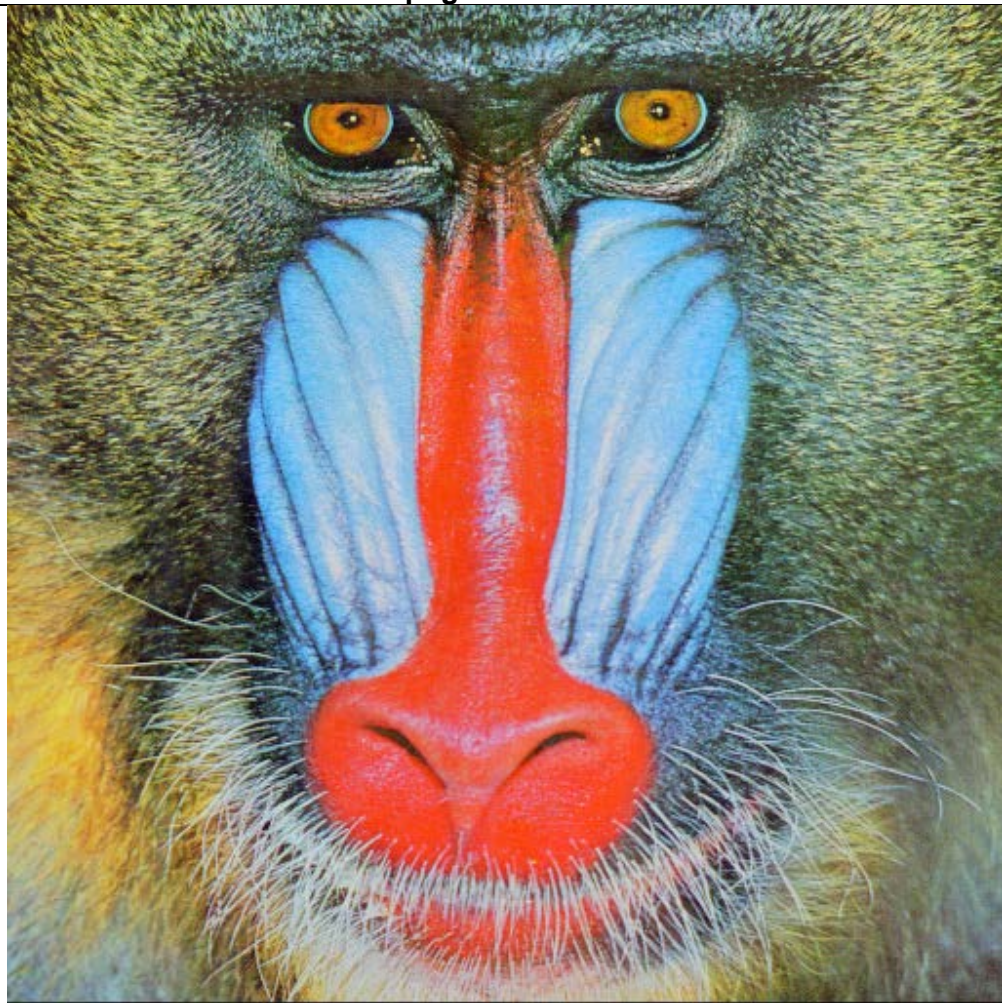


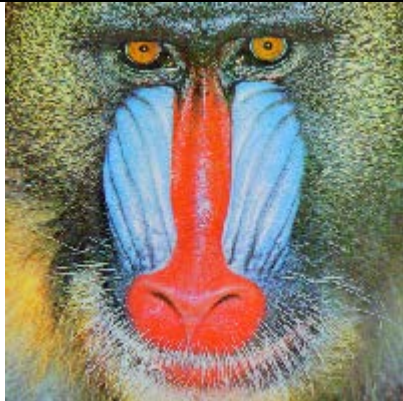


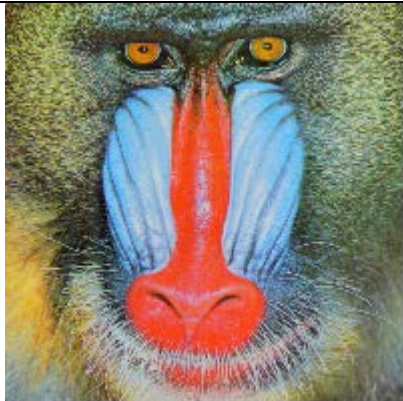


“read0.png” - ORIGINAL IMAGE



read0	200x200	100x100	50x50
Nearest Neighbor			
Bilinear			

“read1.png” - ORIGINAL IMAGE



read1	200x200	100x100	50x50
Nearest Neighbor			
Bilinear			



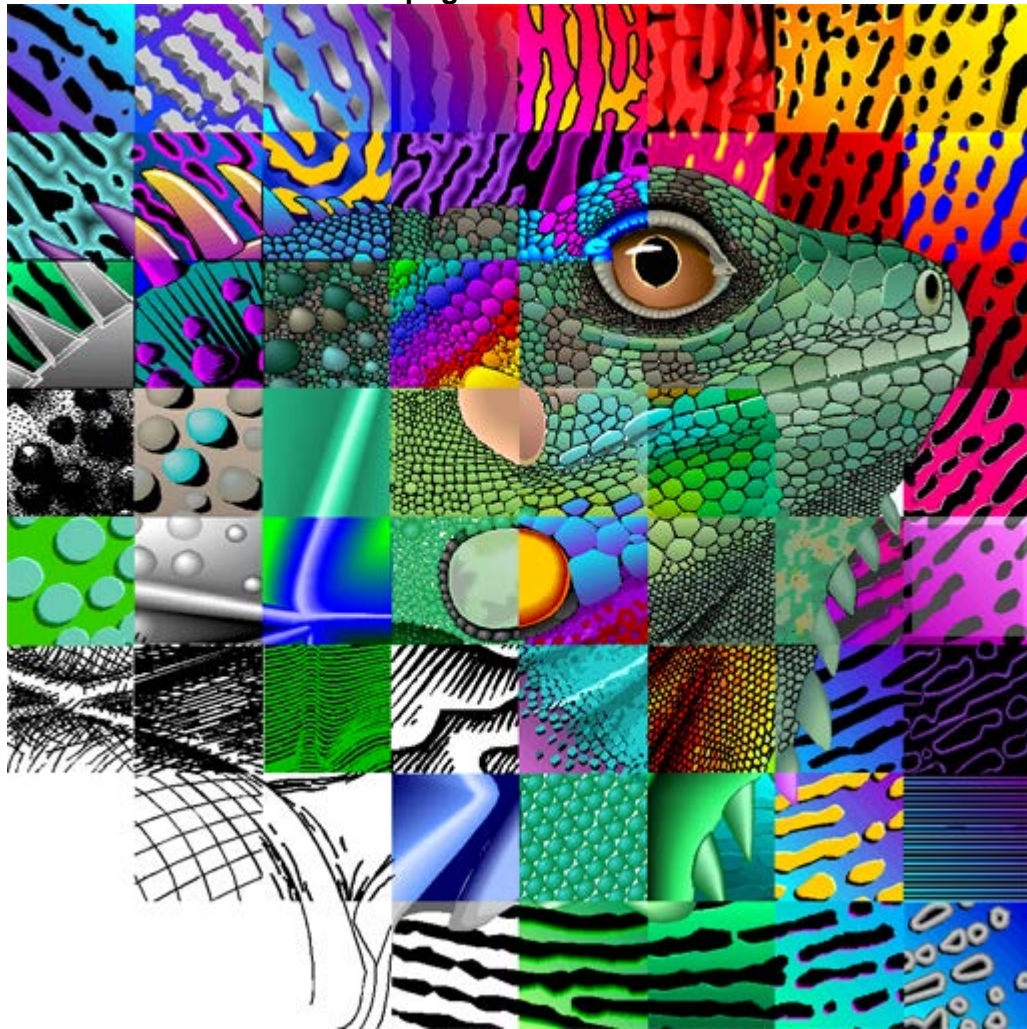
“read2.png” - ORIGINAL IMAGE

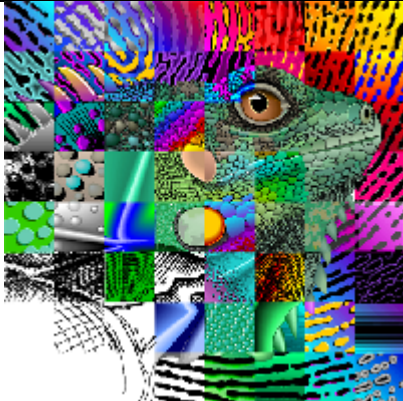




read2	200x200	100x100	50x50
Nearest Neighbor			
Bilinear			



“read3.png” - ORIGINAL IMAGE



read3	200x200	100x100	50x50
Nearest Neighbor			
Bilinear	