|  |
| --- |
| **clc** |
|  |

|  |
| --- |
| **clear all** |
|  |

|  |
| --- |
| **close all** |
|  |

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| --- |
| **% 打开原图** |
|  |

|  |
| --- |
| **imOri=imread('lena.jpg');** |
|  |

|  |
| --- |
| **%缩放、灰度化原图** |
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|  |
| --- |
| **imOri=imresize(imOri,[512 512]);** |
|  |

|  |
| --- |
| **imOri=rgb2gray(imOri);** |
|  |

|  |
| --- |
| **%哈尔小波变换** |
|  |

|  |
| --- |
| **[LLorig,LHorig,HLorig,HHorig] = haart2(imOri,2);** |
|  |

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| --- |
| **% 打开水印图** |
|  |

|  |
| --- |
| **imWat=imread('logo.jpg');** |
|  |

|  |
| --- |
| **% 缩放、灰度化水印图** |
|  |

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| --- |
| **imWat=imresize(imWat,[512 512]);** |
|  |

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| --- |
| **imWat=rgb2gray(imWat);** |
|  |

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| --- |
| **%哈尔小波变换** |
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| --- |
| **[LLw,LHw,HLw,HHw] = haart2(imWat,2);** |
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| --- |
| **% 加水印后的图** |
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| --- |
| **Wratio=0.01;** |
|  |

|  |
| --- |
| **LLwatermarked = LLorig+Wratio\*LLw;** |
|  |

|  |
| --- |
| **imNew = uint8(ihaart2(LLwatermarked,LHorig,HLorig,HHorig));** |
|  |

|  |
| --- |
| **% 保存加水印后的图** |
|  |

|  |
| --- |
| **imwrite(imNew,'lena-logo.png')** |
|  |

|  |
| --- |
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| --- |
| **% 绘图** |
|  |

|  |
| --- |
| **figure;** |
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|  |
| --- |
| **imshowpair(imOri,imNew,'montage')** |
|  |

|  |
| --- |
|  |
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|  |
| --- |
| **imNew=imread('lena-logo.png');** |
|  |

|  |
| --- |
| **figure;** |
|  |

|  |
| --- |
| **imagesc(double(imOri)-double(imNew))** |
|  |

**colormap(gray)**