

Pensieve header: Undated: Textbook (EIWL) chapters 10-12.

10. Images

```

CurrentImage[]

$ImagingDevices

$ImagingDevice = $ImagingDevices[[2]];
img = CurrentImage[]

ColorNegate[img]

{Blur[img], Blur[img, 10]}

Table[Blur[img, n], {n, 0, 15, 5}]

ImageCollage[Table[Blur[img, n], {n, 0, 15, 5}]]

DominantColors[img]

Binarize[img]

Manipulate[Binarize[img, t], {t, 0, 1}]

DominantColors[Binarize[img]]

img1 = EdgeDetect[img]

ImageAdd[img, img1]

imgs = WikipediaData["knot theory", "ImageList"]

ImageCollage[Scaled[1] → imgs, Method → "ClosestPacking", Background → White]

cf = Import["http://drorbn.net/ap/Classes/17-1750-ShamelessMathematica/20170929_110340.jpg"]

EdgeDetect[cf]

faces = FindFaces[cf]

ImageTrim[cf, #] & /@ faces

```

11. Strings and Text

```

"This is a string."

StringLength["hello"]

StringReverse["hello"]

ToUpperCase["I'm coding in the Wolfram Language!"]

StringTake["this is about strings", 10]

StringLength[StringTake["this is about strings", 10]]

StringJoin["Hello", " ", "there!", " How are you?"]

{"apple", "banana", "strawberry"}

StringTake[{"apple", "banana", "strawberry"}, 2]

StringJoin[{"apple", "banana", "strawberry"}]

Characters["a string is made of characters"]

Sort[Characters["a string of characters"]]

```

```

InputForm[Sort[Characters["a string of characters"]]]
TextWords["This is a sentence. Sentences are made of words."]
StringLength[TextWords["This is a sentence. Sentences are made of words."]]
StringTake[WikipediaData["knot theory"], 100]
WordCloud[DeleteStopwords[WikipediaData["knot theory"]]]
Take[WordList[], 20]
WordCloud[StringTake[WordList[], 1]]
RomanNumeral[1988]
Table[RomanNumeral[n], {n, 20}]
ListLinePlot[Table[StringLength[RomanNumeral[n]], {n, 100}]]
IntegerName[56]
ListLinePlot[Table[StringLength[IntegerName[n]], {n, 100}]]
Alphabet[]
LetterNumber[{"a", "b", "x", "y", "z"}]
FromLetterNumber[{10, 11, 12, 13, 14, 15}]
Alphabet["Russian"]
Rasterize[Style["ABC", 100]]
EdgeDetect[Rasterize[Style["ABC", 100]]]
FromCharacterCode /@ Range[1000]

```

12. Sound

```

Sound[SoundNote["C"]]
Sound[{SoundNote["C"], SoundNote["C"], SoundNote["G"]}]
Sound[Table[SoundNote[RandomInteger[12], 0.1, "Violin"], 20]]
Play[Sin[440 × 2 Pi t], {t, 0, 1}]
Manipulate[{e^f, Play[Sin[e^f 2 Pi t], {t, 0, 1}, SampleRate → 100 000]},
  {{f, Log@440}, Log@10, Log@30 000} ]

```