Review. Future

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Programming for Scientists

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Case Study

Computer vision

Analysis of fluorescent micrograph
Third-party libraries are hit & miss
mahotas is good
scikit-image is good
imread is good
Task

Given an image which has a dna (Hoechst) and a protein (GFP tag) channel, can we determine “what fraction of protein is in nuclear region?”
from mahotas import imread

dna = imread(’00-001-dna.tif’)
protein = imread(’00-001-protein.tif’)

We now have arrays of small integers.
Remember, all that we have are small numbers.

We can show them in different ways for better visualization.
Thresholding

1. Gaussian filtering
2. Otsu thresholding
Protein Measurement

1. Subtract background
2. Sum up protein fluorescence inside valid region
3. Sum up protein fluorescence outside valid region
Links for Learning More

- How to Think Like a Computer Scientist http://interactivepython.org/courselib/static/thinkcspy/index.html
- Stack Overflow for asking questions
- Python.org & numpy.scipy.org for documentation
I am giving an introductory/research talk on **Bioimage Informatics**

- October 31st 10am (room 057)
Any Other Questions...

Email me: luis@luispedro.org