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Digital Image Processing

Lecture 3: Get Hand Dirty by Coding CV

Guoxu Liu

Weifang University of Science and Technology

# Experimenting with Computer Vision



**Talk is cheap.  
Show me the code.**

Linus Torvalds

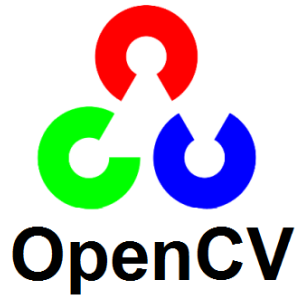
- Getting hand dirty on computer vision is very important
- Artificial Intelligent becomes more and more empirical
- Trial and error approach to learn computer vision

# Coding

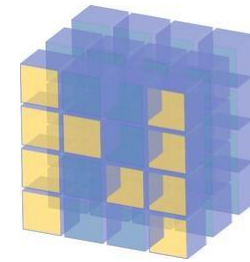
- Python coding
- Computer vision libraries: OpenCV

# Reinventing Wheels?

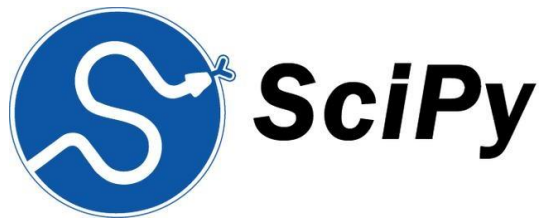
- No. Start with existing libraries and pay more attentions to the specific algorithms



scikit-image  
image processing in python



NumPy



matplotlib

# Python Environment Setup

- Download PyCharm (Community Version):  
<https://www.jetbrains.com/pycharm/download/#section=windows>
- Anaconda3 Version 4.2.0-Windows-x86\_64  
<https://repo.anaconda.com/archive/>

# Homework and What's Next

- Programming: Log Transformation
- Programming: Bit-Plane Slicing

- Next class: Spatial Filtering

Please read Gonzalez and Woods: **Chapter 3**

# In case you need it

- Python tutorial: <http://cs231n.github.io/python-numpy-tutorial/>
- OpenCV tutorial:  
[https://docs.opencv.org/master/d9/df8/tutorial\\_root.html](https://docs.opencv.org/master/d9/df8/tutorial_root.html)
- Numpy tutorial: <http://cs231n.github.io/python-numpy-tutorial/>
- Matplotlib tutorial: <https://matplotlib.org/3.3.2/tutorials/index.html>