

# Image Manipulation using Arrays

**Spoken Tutorial Project**

**<http://spoken-tutorial.org>**

**National Mission on Education through ICT**

**<http://sakshat.ac.in>**

**Script: Arun KP**

**Narrator: Priya K**

**IIT Bombay**

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# Learning Objectives



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- ▶ Read images into arrays



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- ▶ Read images into arrays
- ▶ Perform processing on them using simple array manipulations



# System Specifications



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## ▶ Ubuntu Linux 16.04



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- ▶ **Ubuntu Linux 16.04**
- ▶ **Python 3.4.3**



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- ▶ **Python 3.4.3**
- ▶ **IPython 5.1.0**



# Pre-requisite

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- ▶ **run basic Python commands on the ipython console**



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- ▶ **access parts of arrays**



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If not, see the relevant Python tutorials on <http://spoken-tutorial.org>



# Download Files



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- ▶ Please download the files **Squares.png** and **Python.png** from the **Code files link** of this tutorial



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- ▶ Please download the files **Squares.png** and **Python.png** from the **Code files** link of this tutorial
- ▶ **Save the files in the current working directory**



# Exercise



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- ▶ Obtain the square in the center of the image `Squares.png` with size `150X150`



# Summary

- ▶ **Read images into arrays and manipulate them**



# Evaluation

1. The shape of the variable `img` is `(600, 600, 4)`.  
What will be the shape of `img1` if `img1 = img[:,::2,::4]`

- ▶ `(300, 300, 4)`
- ▶ `(150, 300, 4)`
- ▶ `(300, 150, 4)`
- ▶ `(150, 150, 4)`



# Solution

**(300, 150, 4)**



# Forum to answer questions

- ▶ **Do you have questions in THIS Spoken Tutorial?**
- ▶ **Choose the minute and second where you have the question.**
- ▶ **Explain your question briefly.**
- ▶ **Someone from the FOSSEE team will answer them. Please visit**

<http://forums.spoken-tutorial.org/>



# Forum to answer questions

- ▶ Questions not related to the Spoken Tutorial?
- ▶ Do you have general / technical questions on the Software?
- ▶ Please visit the FOSSEE Forum  
<http://forums.fossee.in/>
- ▶ Choose the Software and post your question.



# Textbook Companion Project

- ▶ **The FOSSEE team coordinates coding of solved examples of popular books**
- ▶ **We give honorarium and certificate to those who do this**

**For more details, please visit this site:**

<http://tbc-python.fossee.in/>



# Acknowledgements

- ▶ **Spoken Tutorial Project is a part of the Talk to a Teacher project**
- ▶ **It is supported by the National Mission on Education through ICT, MHRD, Government of India**
- ▶ **More information on this mission is available at:**

<http://spoken-tutorial.org/NMEICT-Intro>



# THANK YOU!

For more information, visit our website  
<http://fossee.in/>

