UNIVERSITÀ DEGLI STUDI DI PADOVA

The OpenCV Hello world

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INTELLIGENT AUTONOMOUS SYSTEMS LAB

Agenda

- A first OpenCV program
- Key elements of the program
- The cv namespace

Lab account

- You will need an account to access the computers in the lab
- Please get your account here:

https://www.dei.unipd.it/nuovoaccount

"Hello world"

```
// OpenImg.cpp
#include <opencv2/highgui.hpp>

int main(int argc, char** argv)
{
  cv::Mat img = cv::imread(argv[1]);
  cv::namedWindow("Example 1");
  cv::imshow("Example 1", img);
  cv::waitKey(0);

  return 0;
}
```

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#include directive

- Insert the OpenCV header file here
- Handled by the preprocessor

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main function

- Execution starts here (C++ standard)
- argc: # of command line arguments
- argv: vector of command line arguments
- char** is a pointer to pointer – no worries for now

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```

imread

- Reads from file
- Allocates memory

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Mat

- Data structure storing the pixels
- Memory management

"Hello world"

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```

Window

- Graphical element
- Handles by means of its name

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}
```

imshow

- Draws an image on a window

"Hello world"

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}
```

waitKey

- Synchronizes drawing
- A blocking call (if arg is 0)
  - Blocked until a key is pressed
  - A timeout may be provided

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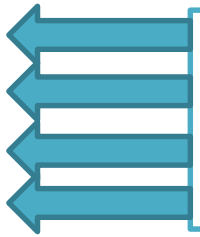
  return 0;
}
```



cv::

- This is the OpenCV **namespace**

Namespaces

- Namespaces are used to separate names related to a given library
- Example:
  - Many libraries may use a Mat class
  - cv::Mat is distinguishable from mylib::Mat
- The namespace becomes part of the name of the class/function
- Shortcuts are available ("using")

"Hello world"

```
// OpenImg.cpp
#include <opencv2/highgui.hpp>

using namespace cv;

int main(int argc, char** argv)
{
  Mat img = imread(argv[1]);
  namedWindow("Example 1");
  imshow("Example 1", img);
  waitKey(0);

  return 0;
}
```

Never use it in a header file

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