Computational Physics
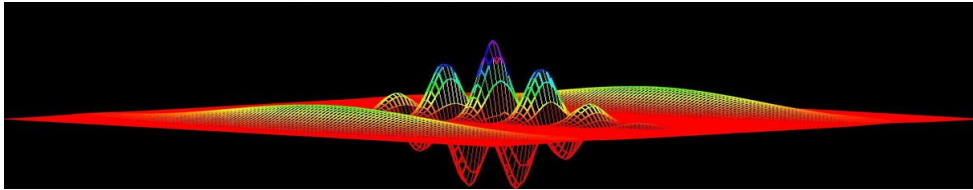
numerical methods with C++ (and UNIX)

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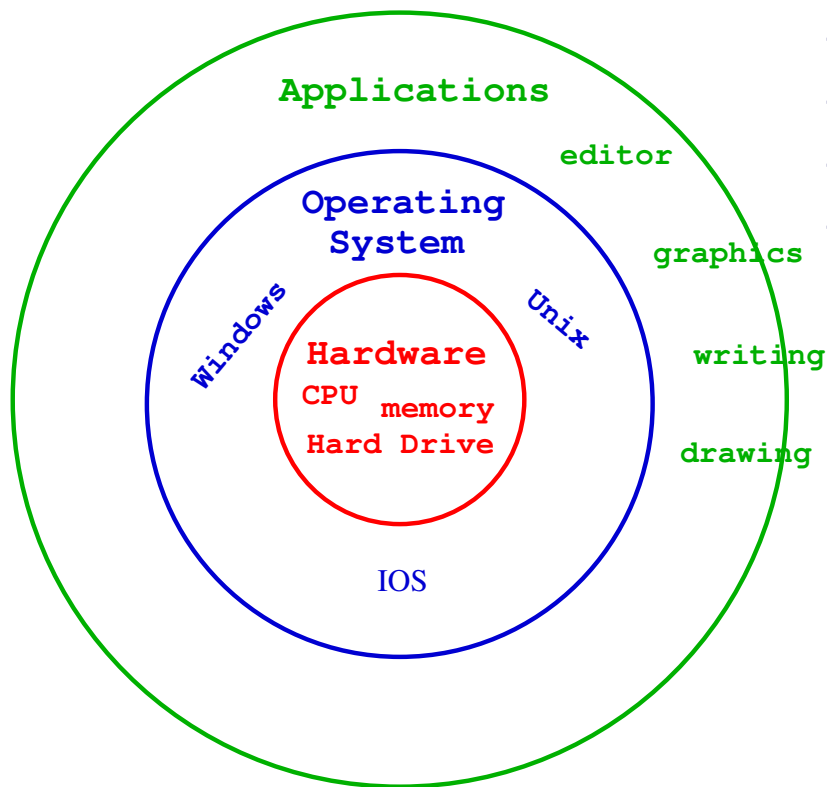email: barao@lip.pt

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Computational Physics
Operating systems

UNIX (linux)

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Operating systems

Many linux distributions :
- Debian
- Ubuntu (& derivatives)
- Linux Mint
- Fedora

Applications

editor

Operating
System

graphics

Windows

Unix

writing

Hardware
CPU memory
Hard Drive

drawing

IOS

The Computer Museum

computermuseum.co

Linux installation

✔ Directly in the computer using one of the many available
flavors : ubuntu, fedora, ...
ubuntu : http ://www.ubuntu.com/desktop
fedora : http ://fedoraproject.org
linuxMint : http ://www.linuxmint.com

✔ Through a virtual machine
virtual box : www.virtualbox.org
VMware : available at IST

UNIX basics

✔ **login**

  ► from windows : *putty*

  ► from another unix system :
    ssh user@machine-address

✔ **editors**

  ► *emacs* : one of the most used editors and somewhat complex

  ► *gedit* : very simple editor

  ► *vi* : for geek pretenders !

✔ **filesystem commands**

  ► copy files : *cp <file1> <file2>*

  ► rename file : *mv <file1> <file2>*

  ► move file from di1 to dir2 :
    mv dir1/<file> dir2/.

  ► list files : *ls -lrth*

  ► list invisible files : *ls -a*

  ► change directory : *cd dir*

  ► echo current directory : *pwd*

  ► make new directory : *mkdir <dirname>*

  ► remove empty directory : *rmdir <dirname>*

✔ **wild cards**

  ► *?* : match any character *(ls -l nom)*

  ► *** : match any size string *(ls -l *.exe)*

  ► *[a-h]* : match any character in range
    (ls -l m[a-h].exe)

  ► *[!ab]* : match all but enclosed characters

  ► *~* : home directory *(cd ~)*

  ► *~user* : user home directory *(cd ~user)*

✔ **file redirection**

  ► *>* : redirect to standard output
    (cat file1 file2 > file3)

  ► *>&* : redirect to standard error *(a.exe >& A)*

  ► *>>* : append to standard output
    (cat file1 >> file2)

  ► *|* : pipe standard output to another command
    (ls | grep v)

  ► *<* : input redirection *(a.exe < a.txt)*

  ► *<<string* : read from standard input until "string" is found as the only thing in the line

✔ **special symbols**

  ► *;* : command separator

  ► *&* : run command in background