SYS1 - Harmonie

$a_0 \sum_{n=1}^{\infty} a_n \cos(n2\pi\nu t) + b_n \sin(n2\pi\nu t)$

Jules Aubert

Sommaire

1. Bibliography
2. Makefiles
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6. Questions?

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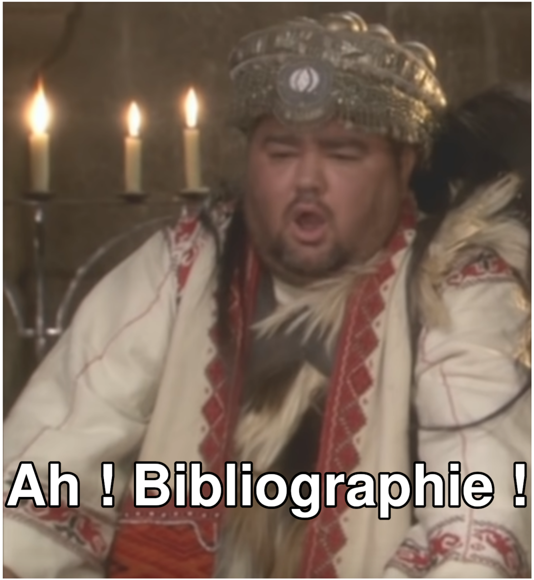
Bibliography



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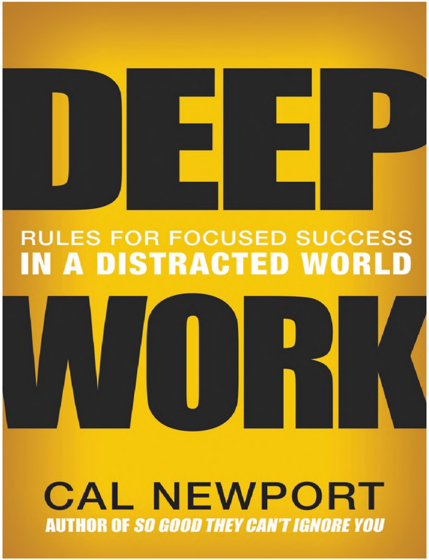
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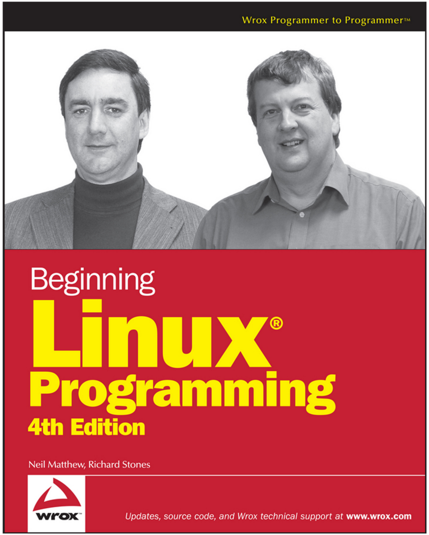
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Neil Matthew, Richard Stones
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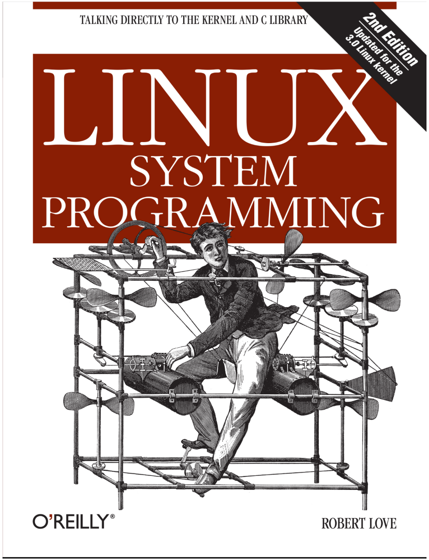
Linux System Programming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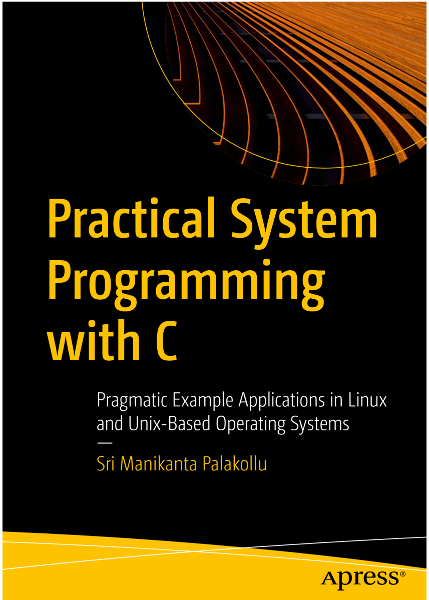

Practical System Programming with C

Pragmatic Example Applications in Linux and Unix-Based Operating Systems

—

Sri Manikanta Palakollu

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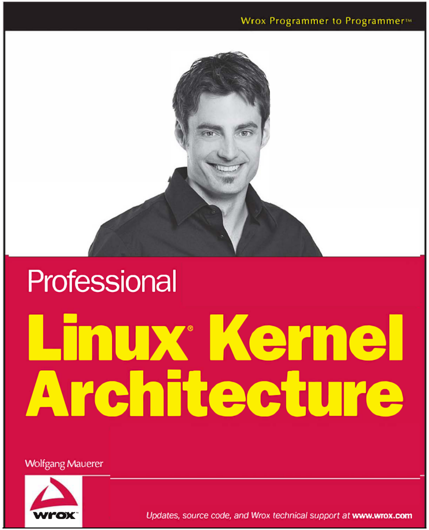
Linux Kernel Architecture



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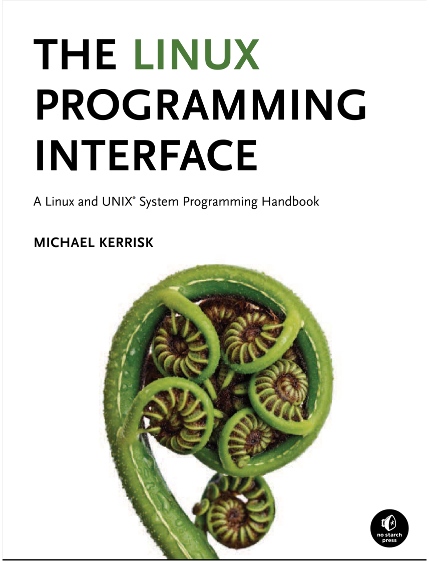
Linux Programming Interface



THE LINUX PROGRAMMING INTERFACE

A Linux and UNIX® System Programming Handbook

MICHAEL KERRISK

no starch press

Holy Grail

kernel.org

docs.kernel.org

OSDev

wiki.osdev.org

DEVSE

devse.wiki

Makefiles

It's demo time!

https://github.com/Gelules/makefiles

Shell - Builtins

- help
- builtin
- type
- which

Shell - test like a pro

```
man test
```

Shell - loop at the swimming pool, don't poop (lool)

- for with seq
- for without seq
- whiling a file

For with a seq

```
for i in $(seq 2 5 26)
do
    echo $i
done
```

It uses a subshell and invokes the seq(1) binary

For with pure shell

```
for i in {2..26..5}
do
    echo $i
done
```

Read a file line by line with while

```
while read line
do
    echo $line
done < the_file_to_read
```

Shell - Functions

https://github.com/Gelules/dotfiles

Undefined Behavior

Try it with sh, bash, zsh, ksh, csh, . . .

```
rm -rf toto
mkdir toto
cd toto
rmdir ../toto
cd .
pwd
echo $PWD
```

What just happened?

Brain teaser

I accidentaly execute

```
sudo chmod -x $(which chmod)
```

How can I retrieve the chmod execution bit?

Brain answer

I could use chmod(2)

Or use ld.so to load the binary in a memory zone that can execute code

```
sudo /lib64/ld-linux-x86-64.so.2 /usr/bin/chmod +x /usr/bin/chmod
```

sizeof *

I got a function pointer. The function takes 9 chars and 2 ints and returns a float.

What it the size of my pointer?

sizeof *

```c
float func(char c1, char c2, char c3,
           char c4, char c5, char c6,
           char c7, char c8, char c9,
           int i1, int i2)
{
    return (float)(c1 + c2 + c3 + c4 + c5 + c6 + c7 + c8 + c9 + i1 + i2);
}

int main(void)
{
    float (*func_ptr)(char, char, char,
                      char, char, char,
                      char, char, char,
                      int, int) = func;

    return sizeof (func_ptr);
}
```

Vim

Chewie's vim conf Conférences 42sh 2019 - VIM / Emacs

TODO: speedrun the

- buffer
- split
- tab,
- autocompletion (text and files)
- compilation with the quickfix window
- terminal
- debugger

(**all vanilla**) to show interests

Black conf

I was supposed to do this in a bar with you all at the end of the Piscine... but nothing happened :'(

Talk to the BEABA asso about it ;)

I may consider doing black confs this year in class :)

?

Questions?