

Fabien Le Mentec

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May, 17th 1984

French nationality

Driver licence

Boat licence

Diving PADI Open Water Level 1

Embedded systems engineer

Education

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|------|---|
| 2008 | Master degree in computer science. EPITECH, Paris. |
| 2006 | Bachelor degree in computer science. EPITECH, Paris. |

Employment

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| 2012 - present | Embedded systems engineer at ESRF (permanent position) <ul style="list-style-type: none">– Control and data acquisition for physics instruments<ul style="list-style-type: none">– embedded systems electronics and software– high performance Linux software stack and drivers– realtime using ARM AM335x PRUs– HDL blocks for PCIe and 10GbE FPGA based hardware– motor encoding electronics and software– PoE supply stage– participation to international conferences |
| 2010 - 2012 | Software engineer at INRIA, MOAIS group (fixed term, 2 years) <ul style="list-style-type: none">– Programming high performance multicore and heterogeneous architectures<ul style="list-style-type: none">– XKA-API runtime design and implementation (kaapi.gforge.inria.fr)– lead engineer in partnership involving CEA Saclay, ANR REPDYN– implementation of a compiler to support parallelism constructs– participation to HPC international conferences |
| 2009 | Embedded firmware developer at Luceor (mission, 3 months) <ul style="list-style-type: none">– 802.11 Mesh Networking<ul style="list-style-type: none">– Linux kernel software for Atheros Mips System On Chip |
| 2007 - 2009 | Software engineer at Skyrecon Systems (2 years) <ul style="list-style-type: none">– Disk encryption solution (bios, driver)– Network development (NDIS kernel layers)– Windows kernel security research |
| 2006 | Embedded developer at Euriware (intern, 6 months) <ul style="list-style-type: none">– Industrial serial buses data logger<ul style="list-style-type: none">– Linux kernel driver, PC104 architecture– TCP/IP data server and client |
| 2008 - 2012 | Teaching lectures. EPITA <ul style="list-style-type: none">– Microkernel project– Windows NT drivers courses– CAN, USB courses |

Publications and Reports

2010 - 2013

- *RASHPA : a Data Acquisition Framework for 2D X Rays Detectors*
 - F. Le Mentec, P. Fajardo, C. Herve, A. Homs, T. Le Caer
 - ICALEPCS 2013
 - www.icalepcs2013.org/programs/abstract_details.php?id=TUMIB07
- *The X-Kaapi's programming model and User's manual*
 - F. Le Mentec, T. Gautier, V. Danjean
 - Technical Report INRIA, 2011.
- *A Work Stealing Algorithm for Parallel Loops on Shared Cache Multicores*
 - M. Tchiboukdjian, V. Danjean, T. Gautier, F. Le Mentec and B. Raffin
 - Highly Parallel Processing on a Chip (HPPC). 2010
 - moais.imag.fr/membres/marc.tchiboukdjian/pub/hppc10.pdf
- *Adaptive Algorithms for Shared Cache on Multicore*
 - M. Tchiboukdjian, V. Danjean, T. Gautier, F. Le Mentec, B. Raffin
 - Research Report, (RR-7256) :17, INRIA, apr 2010
 - hal.inria.fr/inria-00473617/PDF/RR-7256.pdf
- *Technical Blog*
 - www.embeddedrelated.com/blogs-1/nf/fabien_le_mentec.php

Associative Experience

2010 - 2011

IGREBOT Robotic Association

- www.igrebot.fr
- EUROBOT competition
- main boards : Renesas/RX62N and SBC2410/ARM
- engine control and IO boards : DSPIC33F, DSPIC30F
- CAN and I2C communication

2010

ACONIT Association

- www.aconit.org
- PIC18F USB device to interface PC and mechanical tape readers
- project documentation and repositories :
 - www.aconit.org/collection/documation-usb
 - github.com/texane/documation_m600
 - github.com/texane/slosyn

2006

EPITA system and security laboratory

- microkernel project
- system and security teaching assistant

Open Source Projects

STLINK : STM32 discovery line Linux programmer

- github.com/texane/stlink
- >500 users, >100 contributors

BANO : Internet of Things platform

- github.com/texane/bano
- Low power consumption nodes (down to 200uA)
- ATMEGA328P and NRF905 (433 MHz)
- Beagle Bone Black base station, HTTP enabled

VPCIE : PCIe endpoint virtualization

- github.com/texane/vpcie
- OHW2013 slides at www.ohwr.org/attachments/2462/vpcie.pdf

Skills

Software

- Programming languages : C/C++, Java, Assembly, Python, VHDL
- Kernels : Linux, Windows NT, realtime kernels
- Parallelism : OpenMP, TBB, CUDA. hybrid architectures (ex : NUMA, 96 cores, 8 GPUs)
- Scientific : Matlab, linear algebra, image and signal processing, classification algorithms

Architectures

- Microprocessors : IA32, ARM (AM335x and CORTEX series), SPARC
- Microcontrollers : MIPS SoC, Microchip PICs, Renesas RX62N, AVR
- FPGAs : Xilinx VIRTEX and KINTEX series

Electronics

- schematics design, board routing, soldering
- components sourcing (power supply, analog digital ...)
- signal conditioning and filtering
- interfacing (bus transceivers, sensors ...)

Networking

- TCP-IP, IPv6, Ethernet, 802.11, RF, SDR
- PCIe, 10GbE, USB, CAN, I2C, SPI, industrial buses (MODBUS ...)
- Protocol design and implementation for resource constrained applications
- Security : cryptography, software and network reverse engineering

CAO

- electronic circuit design (ALTIUM, EAGLE) and simulation (LTSPICE)
- SOLIDWORKS
- CNC milling, laser cutting

Languages

French

Mother tongue

English

TOEIC (gr. 800), good written and spoken skills (esp. technical materials)

German

Notions