

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– 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 and board routing (2 layers)
- components sourcing (power supply, analog digital conversion ...)
- signal conditioning and filtering
- interfacing (bus transceivers, memories ...)

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 (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