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

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

Employment

2018 — **Software engineer at SOGETI High Tech (3 months)**
– Refactoring of the SNCF railway company software infrastructure
  – OPC-UA server to centralize data
  – JAVA middleware

2012 - 2018 — **Embedded systems engineer at ESRF (permanent position)**
– Control and data acquisition for physics instruments
  – embedded systems electronics and software
  – realtime high performance Linux software stack and drivers
  – design and implementation of FPGA based platforms
  – electronic stages (PoE, communication links ...)
  – PCIe and 10GbE based data acquisition platforms
  – participation to international conferences

2010 - 2012 — **Software engineer at INRIA, MOAIS group (fixed term, 2 years)**
– Programming high performance multicore and heterogeneous architectures
  – XKAAPI 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)**
– 802.11 Mesh Networking
  – Linux kernel software for Atheros Mips System On Chip

2007 - 2009 — **Software engineer at Skyrecon Systems (2 years)**
– Disk encryption solution (bios, driver)
– Network development (NDIS kernel layers)
– Windows kernel security research

2006 — **Embedded developer at Euriware (intern, 6 months)**
– Industrial serial buses data logger
  – Linux kernel driver, PC104 architecture
  – TCP/IP data server and client

2008 - 2012 — **Teaching lectures. EPITA**
– Microkernel project
– Windows NT drivers courses
– CAN, USB courses

Publications and Reports

2010 - 2013

– *RASHPA : a Data Acquisition Framework for 2D XRays 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, OpenMP, CUDA – Kernels : Linux, Windows NT, realtime kernels – Scientific : Matlab, linear algebra, image and signal processing, machine learning
Architectures	– Microprocessors : IA32, ARM (AM335x and CORTEX series), SPARC – Microcontrollers : MIPS SoC, Microchip PICs, Renesas RX62N, AVR – FPGAs : Xilinx Spartan, Kintex, Virtex series
Electronics	– schematics design, board routing, soldering – components sourcing (power supply, analog digital ...) – signal conditionning 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 – GCode, CNC milling, laser cutting, 3D printing

Languages

French	Mother tongue
English	TOEIC (gr. 800), good written and spoken skills (esp. technical materials)
German	Notions