David Bensoussan

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Software Engineer specialized in embedded and systems

In a few words, I am passionate of new technologies and particularly robotics, automation and all their fields of applications.

Currently at Synapticon in the Stuttgart area for more than 3 years, I planned, designed and coded for each software stack of an **autonomous lawnmower robot**: high level robotics with **ROS** (mainly Python), low level embedded on **SOMANET** (XC, close to C), **embedded Linux** with Yocto and the **CI/CD** behind mentioned topics.

I spent most working on the lawnmower, but I also acted occasionally as a support for internal and clients projects.

I recently started doing **freelancing** on devops and embedded topics to challenge myself and enhance my skills by delivering more applications.

Experiences

🇩🇪 Synapticon

Full stack robotics for an autonomous lawnmower targeting the consumer market

March 2015 -> Today - Full time - Stuttgart, Germany

- **(CI/CD)** Initiated, architected and managed a fully automated CI/CD pipeline, deployed infrastructure on multiple architectures and providers (AWS for amd64 and Scaleway and arch64), wrote and automated processes for multiple projects.
  Increased build speed over time by 100% in average by re-architecturing the containerization approach and totally removed maintenance time by reaching a serverless architecture. Trained interns.
  automation, AWS, autoscaling, Bash, Cloud Computing, CI, CD, design patterns, deployment, Docker, Git, Jenkins, Kubernetes, Packer, Python, Scalability, Scaleway, Terraform
- **(Linux)** Accomplished to have a home made embedded Linux with over the air update support and real time capabilities on arm64 running all robotics software stacks. Debugged and optimized software libraries to be able to run on arm64
  automation, arm, arm64, AWS, Bash, beaglebone, cmake, cross compiling(arm/arm64), Docker, Linux, Linux kernel, make, networking, raspberrypi, real-time, yocto
- **(Embedded)** Developed 15 low level applications and libraries on XMOS multicore chips: sensor data acquisition (encoder, imu, lidar), motor control, odometry. Refactored common code out of 5 libraries reducing total memory used by 25%
  C, design patterns, I2C, SPI, tuning, TDD, UART, XC (close to C)
- **(High level)** Developed state machines, behaviours, localization and navigation software and developed testing software for motor control boards
  Algorithms, cartographer, C++, design patterns, openhtf, Pytest, Python, ROS, static analysis, tuning, TDD

Took part in different parts of projects following best practices in an agile environment small team.
Contributed back to open source: cartographer, jenkins, mender, the Linux kernel, ROS (Infrastructure and code), wiringpi, yocto and most tools I used.
Tested robots on fields, indoor and outdoor, familiar planning client demonstrations and fulfilling their requirements until last moments when required.

🌍 Freelancing

Devops Manager / Linux and ROS development

May 2018 - Today

Working for mutliple clients remotely, mostly devops topics, hourly and contract based.

- Setup and developed CI/CD processes, containerized 100-ish applications, providing immutable and more robust development environments
- Troubleshooted ROS software, packaged ROS applications in containers
  AWS, autoscaling, beaglebone, Docker, hetzner, Jenkins, Networking, PHP, remote, ROS, Security, SQL

🇫🇷 Maintool

Heart rate sensor design

April -> July 2014 - Student internship - Paris, France

Designed the electronics of the main sensor of a connected watch strap, based on LEDs and photodiodes. Developed the software for it.
It is now included in their main product.

Education

ESIEA

2010 - 2015

🎓 Graduate school of Engineering - Master of Science

Embedded systems major, 3 years in robotics student organization (including one year of presidency), robotics courses and competition organization.