Ernest Skrzypczyk

Master in Control Engineering, Robotics and Applied Informatics

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github.com/em-er-es/

Education

2015 – 2017 **Double Masters Degree**, *European Masters in Advanced Robotics + (EMARO+)*, University of Genoa, Italy / École Centrale de Nantes, France.
Thesis: UGV and UAV collaboration in an autonomous infrastructure scenario

2007 – 2011 **Bachelor of Science - Electrical Engineer - Control Engineering and Robotics**, *Wrocław University of Technology*, Wybrzeże Wyspiańskiego 27, PL-50370 Wrocław.
Engineering project: Metrological properties of a hybrid amplifier

Experience – Vocational

01.04.2019 – Current **Freelancing research engineer & developer**, *Varied*, global.
Supportive research engineering in navigation of autonomous vehicle. Custom solutions for various projects such as custom mpv GUI design and extended functionality for monitoring. Technical support for GNU/Linux systems. Development of image restoration pipelines for old video material.

01.07.2018 – 01.03.2019 **GNU/Linux embedded system engineer**, *Undisclosed*, A-1040 Vienna, Austria.
Design and implementation of a custom GNU/Linux system solution on industrial grade version of Raspberry Pi and Nvidia Jetson TX2 for a naval monitoring and anti-collision system.

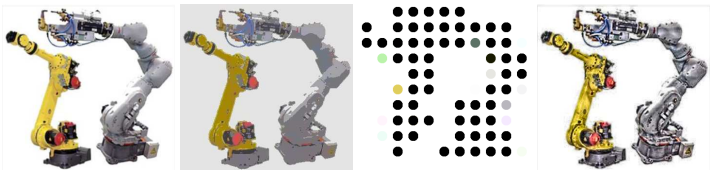
01.11.2017 – 30.06.2018 **Research engineer**, *IRT Jules Verne*, 44340 Nantes/Bouguenais, France.
Vision and laser sensor data fusion, source code update, optimization and maintenance (CI), packaging, design and development of GUI for state representation as well as basic control of cobot unit working in Airbus.

DevOps, SysAdmin

- CI/CD development (GitLab, Jenkins, Travis)
  - IMB full development cycle CI/CD with Docker, TDD, profiling and coverage
  - CI for developed ROS packages
- Packaging (Arch, Ubuntu, OpenSUSE, OBS)
- Version control system (Git)
- Software Control Management (GitLab, GitHub, BitBucket)
- Virtualization (Docker, QEMU)
  - Building applications in Docker for use in host
  - Running Xorg applications in Docker
  - VM with iGPU and USB passthrough
- Documentation (Doxygen, Pandoc, LaTeX)
- Systemd services and scripts
- Extensive automation through scripting
- Networking (PXE boot on direct LAN)

Computer Vision

- Image processing Modular Blocks (IMB)
- Mask pattern filter (Python)
- Image/Video restoration pipelines
- CLAHE (Contrast Limited Adaptive Histogram Equalization)



Input IMB Mask CLAHE

Programming languages

General languages
- *Assembler on various hardware*
- *BASIC derivatives on industrial robots*
- *C/C++ in professional environment*
- *Python, LUA*

Frameworks
- *OpenCV, ROS, PCL, V-REP*

PLC languages
- *Function block diagram*
- *Ladder logic*

Scripting
- *Bash / Zsh*
- *Matlab / Scilab / Pythonxy / Spyder*
- *Command Prompt / Batch*

Languages

Polish	**Native**	Italian	**B1**
German	**Native/C1**	Spanish	**A2**
English	**B2+**	French	**A1**

EMARO+

- Localization of a biped humanoid robot using EKF within the ROS framework (**GH rollo**)
- Study and implementation of SLAM algorithms for a biped humanoid robot in ROS (**GH rollo-slam**)
- UGV and UAV collaboration in an autonomous infrastructure scenario (**GH coslam-vrep**)

Repositories

Main	github.com/em-er-es/	Scripts	scripts	EMARO+	reports
DevOps	devops	Robotics	rollo, rollo-slam, coslam-vrep	Computer Vision	imb, clahe, mask pattern