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Israilov Sardor

Software Engineer (C++/Python, CI/Test) / PhD

Portfolio: linkedin.com/in/sardorisrailov/
ss555.github.io/
google scholar

R&D runtime engineer at **UniversalAutomation.org** (Schneider Electric) owning **release, CI/CD and unit tests** of an IEC 61499 **C++ runtime** for embedded Linux. **PhD** in AI/Robotics (**I3S**/**Inria**/**INPHYNI**) with hands-on hardware setups and system-level debugging. MS in Image&Signal processing, **INSA Lyon**.

Skills

Tools and Languages	Python, C++, C, Go, perl, Makefile, MSVC, Git, Docker, Azure DevOps, GitHub Actions, Linux (glibc/musl, static builds), Matlab&Simulink, OpenCV, ROS, Raspberry/Arduino, SQL, LaTeX
Mastery area	CI/CD & release engineering, unit/regression testing, build systems, embedded & real-time runtime, RTOS, K8S, Deep learning, Computer vision
Communication	English, French, Russian, Uzbek(C1) | German(A2)

Professional & Research Experience

R&D Runtime Engineer for IEC 61499 PLC – ***UniversalAutomation.org (created by Schneider Electric)*** **Feb 2025 - Present**

- Demo conception using 3 PLCs + camera promoting IEC 61499 with computer vision for conferences (Hannover Messe 25/26)
- C++ runtime features (unit tests, cybersecurity, containerization); releases for UAO community; CI/CD on Azure DevOps
- Build system (perl, Makefile, MSVC); trainings and demos for UAO members
- Open-source contributions to Eclipse 4diac (IEC 61499, C++) and development of OPC UA alarm support

R&D Engineer – ***Schneider Electric (EcoStruxure™ Automation Expert)*** **Apr 2024 - Feb 2025**

- Writing microservices in Go for fleet management systems. Deployment of containerized (Docker) PLC runtime via Kubernetes
- Refactoring of the codebase (softdpac) with a new cybersecurity and deployment strategy for fleet management

PhD in Machine Learning Applied to Robotics **Oct 2020 - Apr 2024**

I3S/Inria/INPHYNI (video of thesis) *Nice, France : DS4H selective scholarship*

- Deep learning for swimming optimization of a robotic fish using camera, force sensors, IMU, and Raspberry Pi
- Numerical simulations, dynamics modeling, identification, and simulation of robotic fish. (hardware developed, learning)
- Visual servoing with VAE coupled with deep RL (DRL); speed and thrust optimization of a robotic fish via DRL

PhD project: Machine Learning Applied to a Cart-Pole System – ***(I3S joint with Inria)***

- Demo bench conception with CAD, Raspberry Pi, motor drivers and sensors
- DRL control of a cart-pole in simulation and real setup. Dynamics identification and sim2real transfer of a control policy. Mechanical development (CAD) and installation of an experimental setup

Teaching workshops in Deep Reinforcement Learning in PyTorch | Colloquium Posters
Optimum control strategies for maximum thrust production...;
Reinforcement learning approach to control an inverted pendulum...; **LU-Net: A Multistage Attention Network...**;
Learning to swim fast with DRL...

Technical Experience

Mechatronics R&D Apprentice, Industrial Automation & AGV – ***Solystic*** **Sep 2019 — Sep 2020**

- Motorization study for AGV with real robot testing; data analysis and simulations with Python, MATLAB/Simulink, and CATIA V5
- Empty tray detection using Python/C++ OpenCV
- PLC coding of functional blocks in CODESYS and SoMachine for industrial automation and safety applications (Schneider M251)
- Library (FBD in CODESYS) for conveyors with roller-motors using AS-i and MODBUS protocols with simulation (visualization)
- Development of sizing tools in MATLAB to guide the choice of electric motors and motor drives
- Expatriate mission for postal-sorting machine installation with Schneider SoMachine and FlexiSoft

Education

PhD, *Université Côte d'Azur : I3S/INPHYNI* 2020-2024
Master of Science, *INSA Lyon* 2020

- *Electrical Engineering (specialization:* ***Image and Signal Processing****)* 2017 — 2020
- *Integrated PREPAratory courses section SCAN - Sciences in English* 2015 — 2017

Personal projects

Robotics competition **CdF robotique** with "Clubelek" INSA Lyon 2017-2018
Online courses: *Udacity Robotics [SLAM, Deep RL on robotic arm,Gazebo pick&place,Follow me (unity)],*
Machine Learning [sentiment analysis using AWS, Starbucks data analysis](AWS sponsored), Siemens Simatic S7, Labview Associate Developer...(see on linkedin)