



Babacar THIAM Robotics & Mechatronics Engineer

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🔗 [View my Portfolio: www.babscode.com](https://www.babscode.com) [linkedin.com/in/babacar-thiam-56276a271](https://www.linkedin.com/in/babacar-thiam-56276a271)

🚗 Category B

👤 Profil

Robotics and Mechatronics Engineer specializing in autonomous systems, 3D modeling, and industrial automation. Expert in ROS/ROS2, URDF, LiDAR navigation, and NVIDIA Isaac Sim, with a proven ability to bridge advanced robotics development with industrial motion control and PLC systems.

📁 Projects

Autonomous RC Car (Click here to see the project) [🔗](#)

- Designed and developed an autonomous RC vehicle capable of navigating independently in its environment.
- Integrated camera, LiDAR, Raspberry Pi, and Arduino Uno for perception, decision-making, and control.
- Developed obstacle detection and traffic signs recognition functions.
- Implemented environment mapping and autonomous navigation logic.

Hexapod Robot (Click here to see the project) [🔗](#)

- Designed and developed a full biomimetic hexapod robot from concept sketches to detailed 3D CAD in SolidWorks.
- Performed kinematic analysis of leg articulations including coxa, femur, and tibia joints.
- Exported the robot model to URDF and integrated it into ROS2 Jazzy and NVIDIA Isaac Sim.
- Configured articulations, validated joint axes and physical behavior, and implemented tripod gait algorithms.
- Developed locomotion modes including forward/backward motion, lateral displacement, rotation, crouching, and vertical motion.
- Prepared the project for future extensions in machine learning, autonomy, and computer vision integration.

Cartesian Robot Digital Twin Prototype [🔗](#)

- Designed a 5-axis Cartesian pick & place robotic system for basket handling applications.
- Performed preliminary mechanical sizing of rack & pinion transmission components and linear motion architecture.
- Modeled the robot in SolidWorks, exported it to URDF, and configured it in NVIDIA Isaac Sim.
- Set motion limits, velocities, efforts, and physics properties using Isaac Sim tools.
- Developed early simulation tests with OmniGraph and Python scripts, with the objective of future PLC/OPC UA/ROS2 virtual commissioning

🧠 Technical Skills

Core Competencies

- Robotics System Design
- Mechatronic System Integration
- Robot Kinematics
- Autonomous Mobile Robotics
- URDF Modeling
- ROS / ROS2 Integration
- NVIDIA IsaacSim / IsaacLab
- Gazebo / RViz
- Computer Vision/ OpenCV, YOLO
- LiDAR Integration
- Servo Systems
- Digital Twin / Virtual Commissioning
- Motion Control
- Industrial Automation

Mechanical Design

- SolidWorks
- Fusion 360
- AutoCAD
- URDF / XACRO

Motion & Control

- PLC Programming
- PID Control
- Servo Motor Control
- Motion Control
- Remote I/O Architectures
- Industrial Safety Systems

Perception & AI

- OpenCV
- YOLOv8 / YOLOv11
- LiDAR data processing
- Obstacle detection
- Object detection
- Object Tracking
- Traffic Signs recognition
- 2D mapping

🎓 Education

Engineering Degree in Mechatronics,
University Paris-Saclay – ISTY

09/2022 – 09/2025

Île-de-France, France

Relevant coursework:

- Automation

Professional Experience

Automation Integration Engineer, *APILOG*

02/2026 – aujourd'hui | Île-de-France, France

Automation Integration Engineer working on projects for major industrial clients including **Renault, Safran, Thales, Edilians, and Rexor.**

Project Assignment – Edilians

- Programmed a complete **tile palletizing and packaging line** using **Schneider M340** and **TSXP57 Premium PLCs**.
- Managed **conveyor systems, grippers, handling forks, stretch hooding systems, and dipping processes.**
- Performed **axis control and motion management** using **servo motors, synchronous motors, and asynchronous motors.**
- Migrated **I/O systems** toward **EDGE IO stations** and **remote PLC architectures.**
- Developed **Human-Machine Interfaces (HMIs)** and replaced operator panels.

Project Assignment – Thales

- Managed **synchronized trap/door systems with axis synchronization** using **servo motors.**
- Worked with **S210 drives, Siemens TIA Portal V21, Safety (STO), SIMATIC DRIVE, S7-1500, and ET200SP.**
- Automated **lifting systems for Rafale components/equipment.**
- Conducted **dynamic testing on customer sites** and final **commissioning.**

Automation Consultant Engineer – Special Machines, *Ceva Ecat-ID*

01/2026 – 02/2026 | Brittany, France

- Programmed **special-purpose machines** using **Industrial PC (Panel C80)** and **B&R Automation Studio.**
- Managed **servo-driven axes** for **pendulum transfer systems** and **sorting systems.**
- Developed automation logic for **conveyor handling systems.**

- Mobile Robotics
- Machine Vision
- Embedded Systems

Advanced Technician Diploma in Automation and Robotics,

UIMM Bretagne

11/2021 – 07/2022 | Brittany, France

University Diploma of Technology in Industrial Engineering & Maintenance, *IUT Saint-Malo*

09/2019 – 07/2021 | Saint-Malo, France

Certifications

Electrical Authorizations

- H0V
- B2V Essais
- BE Essais
- BR
- BC

TOEIC

Level B2