Boris Collard

Engineer · Prototyping, project management, energy and resource efficiency

Workshop in Ivry-sur-Seine (Paris area) · Open to positions in France and abroad · Contact: systèmeb.fr

PROFILE

Mechanical and process engineer (MSc, 2008) who takes projects from idea to working object. Started in renewable energy (wind, hydrogen, solar cooling), then led the mechanisms package of a lift bridge (€14 million within a €150 million project), delivered on schedule and on budget with zero accidents. For more than ten years since, I have designed, built and industrialised my own products. My main interest: low-resource production, designed around energy and materials that are available intermittently. Fluent technical English.

SELECTED ACHIEVEMENTS

- **Bacalan-Bastide lift bridge (Vinci Construction):** €14 million mechanisms package; coordinated design offices and manufacturers, controlled schedule and quality, led two teams of eight fitters on day and night shifts. Delivered on schedule and within budget, with zero accidents.
- **Hydrogen and solar cooling (PURE Energy Centre, Scotland):** commissioned electrolysers, designed a hydrogen production unit, built the cooling circuit of a cogeneration fuel cell, calculated and designed a solar absorption refrigerator.
- **Frelox:** automatic Asian hornet trap, designed and built single-handedly, from mechanics to image recognition, around reused printer parts and recycled plastic moulded on an injection press built in the workshop. In 2025 field tests, about 9 in 10 hornets hunting in front of the hive were struck.

PROFESSIONAL EXPERIENCE

Entrepreneur, Frelox · July 2020 – present

- Design, development and industrialisation of an automatic Asian hornet trap; funding, project management, supplier coordination, hiring and managing an electronics engineer.
- Training of image-recognition models and motor servo control (Python, OpenCV); versions in C++ and then Java on salvaged Android smartphones.
- CAD, machining, electronics; moulds and injection press for recycled-plastic parts; partnership with CyclaB for the supply of used printers.
- Field test campaign at three sites and performance validation.

Teacher of technology, mathematics and science · 2015 – 2017

- Teaching content, assessment, support for self-directed learning; student projects, including a sun-tracking parabolic solar oven.

Entrepreneur, La Boîte Qui Roule · June 2013 – present

- Design, manufacture and sale of utility cycles; self-build training courses. Projects: hydraulic braking for trailers, recumbent bike, suspended front rack.

Career break · 2012 – 2013

- Eco-construction worksites (straw bale, timber frame, earth plasters, lime-hemp), construction of a wind turbine, long-distance cycling trips.

Studies and works coordinator, mechanisms, Vinci Construction · 2010 – 2012

Bacalan-Bastide lift bridge, Bordeaux (€150 million project; €14 million mechanisms package).

- Tendering and supplier contract management; functional analysis, validation of drawings and calculations.
- Coordination and inspection of the manufacturing of the mechanisms; qualification test campaign.
- Management of two teams of eight fitters and foremen, day and night shifts; quality (ISO 9001), health and safety.

Design engineer, PURE Energy Centre, Shetland (UK) · 2008 – 2009

- Installation, commissioning and maintenance of electrolysers; design and production management of an all-in-one hydrogen production unit.
- Design and construction of the cooling circuit of a cogeneration fuel cell; calculations and design of a solar absorption refrigerator.
- Consultancy on renewable energy and hydrogen; energy audits.

Assistant wind project manager, Écovent · 2008

- Pre-feasibility studies and wind potential assessment of sites; production monitoring and calculation tool.

SKILLS

- **Project management:** budget, contracts, planning, reporting, team leadership, quality (ISO 9001), health and safety.
- **Design and prototyping:** mechanical design, turning and milling, TIG welding (aluminium and steel), control systems, electronics, equipment testing and qualification, injection moulding.
- **Software:** CATIA V5, FreeCAD, Python (OpenCV), C++, Java.
- **Languages:** French, English (fluent, technical).

EDUCATION

Master's degree in Industrial Equipment and Process Engineering · 2008

Heat transfer, solid and fluid mechanics, rheology, strength of materials, mechanical design, unit operations.