DESIGN OFFICE MANAGER – SOFTWARE DEVELOPMENT – INSTRUMENTATION – R&D

Nathan LEFEUVRE

https://nathanlefeuvre.com
Île-de-France, France

Currently employed, full driving licence, **15 years' experience**

Specify test bench and metrology applications.
Propose software and electrical architectures.
Develop systems tailored to each client's needs.
Write definition and design documents.
Lead engineers, technicians and interns.

PROFESSIONAL EXPERIENCE

Since April 2024 — **STYREL** — Space, Transport, Energy, Charging

April 2024 (2 years) — **Head of the test bench design office**

Responsibilities:
- Accountable for the technical quality of products delivered to clients (documentation, applications, source code).
- Software development: supervision and sequencer for the test benches of a launch vehicle.
- Management of a team of engineers (6 engineers).

Clients: MAIASPACE, SAFRAN, EDF, MBDA, SNCF, SIEMENS, MIXSCIENCE

Achievements:

Management activities (50%):
- Writing technical and commercial proposals.
- Allocating projects across teams. Team scheduling.
- Managing staff career development.
- Technical lead.

Production activities (50%):
- Definition of the software and hardware architecture.
- Project management.
- Development of the bench control software. Writing the documentation required for bench delivery. Liaison with clients and suppliers.

Windows
Git
LabVIEW
Python
CODESYS
Matlab
Instrumentation

2018/2024 (6 years) — **SAFRAN REOSC** — Space, Astronomy, Optics

2022/2024 (3 years) — **Head of the software development and instrumentation team**

Responsibilities:
- Development of the control system for an off-axis collimator (1.50 m M1).
- Development of the control system for a metrology bench for the M2 and M3 mirrors.
- Definition and supervision of the development of the company's metrology benches.
- Management of a team of engineers (5 engineers).

Projects: ELT, collimator, interferometry bench

Achievements:

Management activities (40%):
- Allocating projects within the team. Team scheduling.
- Managing staff career development.
- Technical lead, proposing technical solutions.

Development activities (60%):
- Writing software and hardware specifications. Definition of the software and hardware architecture.
- Writing requirement specifications.
- Development of the bench control software.
- Writing the documentation required for bench delivery.
- Liaison with clients and suppliers.

Windows
SVN
LabVIEW
CODESYS
Matlab
Instrumentation

2018/2021 (3 years) — **Software development and instrumentation engineer**

Responsibilities:
- Development of the control system for a zero-g support and positioning bench for large mirrors (~3.5 tonnes, 4.20 m in diameter).
- Development of the control system for a positioning bench for the M1 mirror.
- Maintenance and upgrades of the company's metrology benches.

Projects: ELT M2, ELT M3, ELT M1 (Extremely Large Telescope)

Achievements:

Management activities (20%):
- Technical lead.
- Proposing technical solutions.

Development activities (80%):
- Writing software and hardware specifications. Definition of the software and hardware architecture. Writing requirement specifications, supplier follow-up.
- Development, integration and validation of the bench control software.
- Writing the documentation required to deliver a metrology bench.

Windows
SVN
LabVIEW
CODESYS
Matlab
Instrumentation

2015/2018 (3 years) — **INTITEK** — Consulting firm

2017/2018 (1 year) — **Consultant engineer in software development and instrumentation**

Responsibilities:
- Development of the control system for an ageing bench for bonded joints (ELT).
- The ageing campaign ran for 4 months, 24/7, without interruption.

Client: SAFRAN
Project: ELT (Extremely Large Telescope)

Achievements:
- Definition of the software and hardware architecture. Writing requirement specifications, supplier follow-up.
- Development, integration and validation of the bench control software.
- Writing the documentation required to deliver a metrology bench.

LabVIEW
CODESYS
Matlab
Instrumentation

2015/2017 (2 years) **Consultant engineer in scientific computing** — Client: IFPEN

Responsibilities:
- Audit of the available software and its compatibility with the existing infrastructure.

Achievements:
- Configuration of EasyBuild and modules.
- Set-up of a Docker server. Creation of Docker images.

Linux/Docker
Python/Script

2010/2015 (5 years) University of Newcastle — Fluid mechanics, Turbulence, CFD



2014 **Research assistant**

Responsibilities:
- Studying the decay of turbulent energy dissipation in order to control the development of turbulent structures.

Achievements:
- Developed the experimental set-up (automated data acquisition).
- Developed software (LabVIEW) controlling sensors and actuators.
- Measured velocity using hot-wire anemometry.

Linux
LabVIEW
Matlab
Instrumentation
Turbulence

2010 **CFD engineer**

Responsibilities:
- Simulating turbulent mixing in a wake flow.
- Determining the role of coherent structures in turbulent mixing.

Achievements:
- Coded (Fortran 90) a temperature solver based on the energy equation.
- Coupled an LBM solver with the temperature solver.
- Validated the code against benchmark cases and analysed the data.

Linux/Fortran 90
OpenMP
Matlab
Mixing

SKILLS

Fluid mechanics: turbulence, heat transfer
Simulation: Navier-Stokes equations, LBM, turbulence models
Instrumentation: motion control, temperature, pneumatics, cameras, force sensors, Pitot tube, anemometry (CTA, CCA)
Project management: **planning** and **team leadership**

IT

Languages: **Fortran**, C/C++, **Python**, Shell, **Matlab**, **LabVIEW**
Web: HTML/CSS, RESTful
Networks: **Modbus**, TCP/IP, EtherCAT, CANopen
Version control: SVN, Git, Reqtify
Office: **OpenOffice**, Microsoft Office, **LaTeX**

LANGUAGES

French: native *English*: fluent

EDUCATION

2024-2027: CLD certification (Certified LabVIEW Developer)
2008-2010: Master's degree (Master 1 and 2) in Mechanics and Mechanical Simulation (University of Grenoble)
2007-2008: Bachelor's degree in Mechanical Engineering and Geophysics (University of Grenoble)
2005-2007: DEUG (two-year university diploma) in Physics and Mathematics (University of Grenoble)
2003-2005: DEUG in Geology and Environmental Sciences (University of Tours)

PUBLICATIONS AND CONFERENCES

Selected peer-reviewed journal articles:

On the normalized dissipation parameter C_ε in decaying turbulence, L. Djenidi, N. Lefeuvre, M. Kamruzzaman, R.A. Antonia, Journal of Fluid Mechanics 817, 61-79 (2017).

Statistics of the turbulent kinetic energy dissipation and its surrogates in the wake flow, N. Lefeuvre et al., Phys. Fluids 26, 095104 (2014).

Selected peer-reviewed conference papers:

Momentum and scalar transport in a localised synthetic turbulence in a channel flow with a short contraction, N. Lefeuvre et al., *European Turbulence Conference* (ETC13), 12-15 September 2011, Warsaw, Poland.