



# LAURENT NTIBARIKURE

Engineering Systems | Physical Modeling | Customer Focus

 ntilau.github.io

 ntilau

 ntilau

 Eindhoven, Netherlands

## SUMMARY


My experiences, with a focus on numerical methods, encompass electronic and mechatronic system development and technical sales & support across several industries (Energy & Aerospace, Electronic Design Automation, and Semiconductors).


Leveraging such a background, I am currently helping designers to develop more effectively towards system-level compliance.

## EXPERIENCE

### Sr Engineer – Design Enablement

**NXP Semiconductors**


 03/2022 – Present


 Eindhoven, Netherlands

- Implemented electromagnetic simulation flows for SoCs development and electromagnetic interference predictions.
- Enhanced vendor solutions to meet the design and integration requirements of the cloud platform.
- Developed problem-resolution automation scripts and applied AI/ML algorithms for electromagnetic surrogate models.

### Technical Account Manager

**Ansys**


 03/2020 – 03/2022


 Utrecht, Netherlands

- Drove customer satisfaction by providing multi-disciplinary technical support and managing global presales activities for the Ansys portfolio.
- Led teams to architect flows across disciplines, focusing on requirements and critical success factors.
- Advised global sales and account engineers on addressable initiatives and pipelines with preliminary requirements and solutions visions.

### Sr. Applications Engineer

**Ansys**


 01/2019 – 03/2020

 Utrecht, Netherlands

- Executed presales activities for electronic systems across industries, supporting high frequency solutions and EMC flows across EMEA.
- Led technical alignment with customers on automotive electrification and connectivity projects, successfully delivering consulting services and trainings.

### Lead Engineer – Testing

**Baker Hughes**


 06/2013 – 12/2018

 Florence, Italy

- Led the development of industrial, ATEX compliant, distributed data acquisition systems to streamline tests execution timelines from months to weeks.
- Resolved 5+ electromagnetic interference issues in NPI validations and factory acceptance tests, contributing to best practices.
- Received an innovation award for patent disclosure of the Structural Vibration Monitoring System and multiple rewards for innovative solutions and customer impact.

### Startup Co-founder

**Università degli Studi di Firenze**

 06/2012 – 06/2013



 Florence, Italy

- Initiated a spin-off, ElectroSoft, to provide efficient numerical codes for design problems.

## EDUCATION

Doctor of Philosophy - PhD, Electronics Engineering



**Università degli Studi di Firenze**

 01/2011 – 02/2014  Florence, Italy

School of "RF, Microwaves and Electromagnetics". Computational Methods focus. With grant (Jan 2011 - Jun 2013).

Master's Degree, Electronics Engineering



**Università degli Studi di Firenze**

 10/2007 – 04/2010  Florence, Italy

Erasmus Placement/LLP framework thesis semester at Universität des Saarlandes. With grant (Sep 2009 - Mar 2010).

Bachelor's degree, Electrical and Electronics Engineering

**Università degli Studi di Firenze**

 01/2003 – 04/2008  Florence, Italy

## AWARDS



**EMEA TAM of the Year | Ansys (01/2021)**

Award for customer and industry focus



**Learn and adapt to win | BHGE (07/2018)**

Patent impact award for the disclosure of "Module with sensors arrangement"



**Customers determine our success | BHGE (03/2017)**

Bronze award for the GE Aviation's Catalyst FETT advanced test instrumentation consulting



**Customers determine our success | GE (10/2016)**

Bronze award for the successful execution of the vibration monitoring system ZADCO customer structural vibrations acceptance tests



**Learn and adapt to win | GE (03/2016)**

Bronze award for the co-generation plant cost savings on the SNC1-2 steam turbine performance validation



**Learn and adapt to win | GE (10/2015)**

Bronze award for the introduction and validation of an effective, cost-saving, structural vibrations digital integration algorithm aimed at accurately deriving speed & displacements measurements from ATEX-compliant accelerometers

- Led team promotion and value proposition pitches to business angels.
- Developed first opportunities in the defense industry.

Doctoral Researcher  
[Università degli Studi di Firenze](#)  
📅 01/2011 – 06/2013 📍 Florence, Italy

- Researched applied & computational electromagnetics, presenting 10+ papers, advising student theses, and supporting examinations.
- Developed high-frequency electromagnetics 3D finite element C++ code for domain decomposition and nonlinear formulations.
- Architected a methodology using MathWorks Simulink and Ansys HFSS for electromagnetic compatibility in variable speed drive systems.

Visiting Researcher  
[Universität des Saarlandes](#)  
📅 10/2009 – 02/2010 📍 Saarbrücken, Germany

- Developed model order reduction in finite element analysis of antenna arrays for fast and accurate beamforming.
- Implemented Matlab code for a 3000x matrix reduction and 300x speedup in antenna pattern computation

R&D Engineer  
[Università degli Studi di Firenze](#)  
📅 12/2007 – 03/2008 📍 Florence, Italy

- Developed wireless connectivity for a battery-powered avalanche rescue ground penetrating radar, optimizing firmware for fast full-duplex/half-duplex conversion timing.
- Executed the design and assembly of an ISM 868 MHz serial modem PCB prototype with off-the-shelf MCU and Radio (sub-GHz RFCE).
- Achieved successful wireless system resulting in improved signal detection accuracy.

PROJECTS

Bearings loading test rig  
[Baker Hughes, a GE Company](#)  
📅 05/2018 - 12/2018 📍 Florence, Italy

- Conceptual design of a novel bearings loading test rig aimed at validating bearings NTIs.
- Investigated on modeling methods of EM coupling between power (variable speed drive system) and signals cabling systems to predict potential interference issues.

GE Aviation's Catalyst  
[Baker Hughes, a GE Company](#)  
📅 06/2017 - 12/2018 📍 Prague, Czech Republic

- Led special instrumentation design and global technical reviews of FETT with design and testing teams (Czech Rep., Poland, USA, Canada).
- Contributed to >4 M\$ cross-P&L project and customer satisfaction.

Gas Turbine embedded SAW sensors  
[Baker Hughes, a GE Company](#)  
📅 02/2018 - 12/2018 📍 Florence, Italy

- Collaborated with University of Florence to investigate the high-frequency numerical modeling of SAW sensors for the accuracy control of temperature measurements.

LM9000: 65 MW aeroderivative gas turbine  
[Baker Hughes, a GE Company](#)  
📅 06/2018 - 12/2018 📍 Florence, Italy

📍 **External focus | GE (06/2014)**  
Bronze award for the RCA activities on Cessao Onerosa, ADRE monitoring system EMI noise mitigation and customer assurance

🏆 **Giorgio Barzilai Prize | SIEm (09/2012)**  
Best paper award for young researchers, for the work "Model order reduction in Finite Element analysis of phased array antennas" presented at the XIX RiNEm

📍 **Ph.D. studies grant | UniFi (12/2010)**  
Full tuition fees and allowance for research on Electromagnetic Compatibility modeling techniques in variable speed drive systems - with GE/Nuovo Pignone

📍 **Dean's listing | UniFi (04/2010)**  
Commissione di Laurea Specialistica in Ingegneria Elettronica presieduta dal Prof. Piero Tortoli (Prot. 1051 n. class. III/9.1.2 del 24 Maggio 2010)

📍 **LLP/Erasmus Placement grant | UniFi (10/2009)**  
Thesis work semester relocation support at Universität des Saarlandes

CERTIFICATION

📄 **Professional Engineer, ID:ES2010277049000038**  
Università degli Studi di Firenze

COURSES

Command of the Message  
[Ansys](#)  
📅 06/2020 📍 Remote

JAWS: Just Another Way of Selling  
[Ansys](#)  
📅 02/2020 📍 Paris, France

GE Crotonville: Delivering Customer Impact  
[GE Oil & Gas](#)  
📅 03/2016 📍 Munich, Germany

Total Quality Lean Six Sigma Green Belt  
[GE Oil & Gas](#)  
📅 06/2014 📍 Florence, Italy

SKILLS

Engineering

Simulations

Management

Testing

Sales

Strategy

Leadership

Customer Satisfaction

Finite Element Analysis

RF

Electronics

Semiconductors

Scripting

Matlab

C++

C

Python

LANGUAGES

- Contributed to conceptual instrumentation design and test rigs erection, data acquisition architecture and control system design by technical and HAZOP reviews.

#### Cross'd

01/2018 - 11/2018

Florence, Italy

- Social networking app PoC based on Bluetooth Low Energy ranging. PoC with Apache Cordova and an AWS EC2 instance

#### BLE Asset Tracking

07/2017 - 09/2017

Florence, Italy

- Sub 5\$/Unit PoC of BLE tags (TI's CC2640) with firmware optimized for long-battery life, aimed at asset tracking and inventory management

#### GE Power slip-ring digital telemetry

GE Oil & Gas

04/2017 - 05/2017

Saarbrücken, Germany

- Ran Ansys HFSS simulations to optimize signal integrity over slip-ring connections (power supply and ethernet transmission lines)
- Achieved shrinking of the rings spacing leading to manufacturing costs reduction
- 4 weeks-FTE cross-P&L billing and customer satisfaction

#### Wet gas compressors at KLAB

GE Oil & Gas

02/2016 - 06/2016

Haugesund, Norway

- Designed and procured validation equipment for ATEX zone 1 test bench.
- Developed Ex-d antenna and low noise amplifier system for GPS synchronization on NI's PXI systems.
- Managed IEC 60079-11 simple apparatus compliance on load cells upon using extremely low voltage (1.5 V) Ex-ia Wheatstone bridge conditioners.

#### Power density compressor

GE Oil & Gas

03/2014 - 05/2016

Florence, Italy

- Led the commissioning Fieldbus Foundation use in testing lab for more than 240 pressure transducers (0.1% uncertainty) upon identifying the proper Firmware configuration which enabled for massive and accurate pressure measurements.
- Managed capacitive vibration probes ATEX-compliance.
- Developed electrostatic numerical model to predict capacitance variation in various surroundings and target shape conditions.
- Contributed to DM37/08 compliance of the test rig contract specification, including power and signaling cabling selection and proper installation.

#### SNC1-2 steam turbine performance evaluation in 6.2 MW cogeneration plant

GE Oil & Gas

09/2015 - 04/2016

Florence, Italy

- Defined novel pressure hookups method at lower cost and better performance to achieve accuracy controlled inter-stage enthalpy measurements according to ASME PTC 19.11.
- Programmed a CAN to Modbus TCP embedded module to enable static torque measurements on a MagCanica telemetry.

#### GE-6G PowerGen Module Structural Vibrations Monitoring System

GE Oil & Gas

11/2015 - 03/2016

Saarbrücken, Germany

Dutch

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English

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French

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German

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Italian

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Kirundi

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Spanish

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## PUBLICATIONS

### Patents

- L. Ntibarikure, "Module with sensors arrangement," US20180180464A1. [Online]. Available: <https://patents.google.com/patent/US20180180464A1/en>.

### Books

- L. Ntibarikure, *Contributions to the Art of Finite Elements in Electromagnetics*. Florence, Italy, 2014. [Online]. Available: <https://hdl.handle.net/2158/843133>.

### Journal Articles

- L. Ntibarikure, "Multiphysics simulations for 5g rfics and socs," *Bits&Chips*, 2019.
- F. Barone, A. Signorini, L. Ntibarikure, T. Fiore, F. Di Pasquale, and C. J. Oton, "Fiber-optic liquid level sensing by temperature profiling with an fbg array," *Sensors*, vol. 18, no. 8, 2018. [Online]. Available: <https://www.mdpi.com/1424-8220/18/8/2422>.
- L. Ntibarikure, G. Pelosi, and S. S. and, "Harmonic balance domain decomposition finite elements for nonlinear passive microwave devices analysis," *Electromagnetics*, vol. 34, no. 3-4, pp. 239-252, 2014. DOI: 10.1080/02726343.2014.877756.
- L. Ntibarikure, G. Pelosi, and S. Selleri, "Efficient harmonic balance analysis of waveguide devices with nonlinear dielectrics," *IEEE Microwave and Wireless Components Letters*, vol. 22, no. 5, pp. 221-223, 2012. DOI: 10.1109/LMWC.2012.2192420.

### Conference Proceedings

- L. Ntibarikure, G. Pelosi, and S. Selleri, "Assessment of the performances of gmres(r) using a domain decomposition approach as a preconditioner," in *Proceedings, XX Riunione Nazionale di Elettromagnetismo (XX RiNEm)*, Padua, Italy, 2014. [Online]. Available: <https://inspirehep.net/literature/1403858>.

- Project involving ATEX-compliant distributed acquisition system for more than 150 vibration measurement points, with 40 kHz analog bandwidth, WiFi5 backhaul to storage and real-time monitoring, GPS or daisy-chain clock distribution synchronization & TSN investigation, characterized of 3D models & BOM detailed design re-insourcing for timely delivery and cost optimization of certified equipment in less than 4 months (vs typ. 8 months). This also led to the introduction and consolidation of a software based velocity and displacement real-time computation from accelerometers, achieving direct \$150k savings, and subsequent lab processes OPEX improvements. Customer value delivered as onsite Turbomachinery Modules structural commissioning.
- L. Ntibarikure, "Model order reduction in finite elements analysis of phased array antennas," in *Proceedings, XIX Riunione Nazionale di Elettromagnetismo (XIX RiNEm)*, S. d. E. SiEm, Ed., Roma, Italy, 2012.
- L. Ntibarikure, G. Pelosi, and S. Selleri, "Harmonic balance finite element analysis of third order intermodulation products in ferrite devices," in *Proceedings, XIX Riunione Nazionale di Elettromagnetismo (XIX RiNEm)*, S. d. E. SiEm, Ed., Roma, Italy, 2012.

## NovalT16 gas turbine, bearings and cooling component tests

### GE Oil & Gas

📅 04/2014 - 10/2015

📍 Saarbrücken, Germany

- Design and validation of smartbox (field datalogger) for analog signals.
- Defined EMC-aware measurement loops design to achieve noise immunity and enhanced measurement accuracies, rigorously applying EN 61000 guidelines (CENELEC 25).

## GE Aviation's GE9X High Pressure Compressor

### GE Oil & Gas

📅 01/2014 - 04/2014

📍 Massa, Italy

- High density data acquisition system design for GE Aviation's compressor test in Massa.
- Performed mitigation on EMC noise due to 130 kW variable speed ventilation system

## BCL306 and BCL317 centrifugal compressors rotordynamics

### GE Oil & Gas

📅 06/2013 - 03/2014

📍 Florence, Italy

- Performed an Ex-p execution of stability's magnetic exciter, contributed to the resolution of customer's opened nonconformity on rotordynamic vibrations upon conducting an electromagnetic interference on Bently Nevada's 3500 RCA.

## Finite Elements Software (FES)

### Università degli Studi di Firenze

📅 06/2011 - 02/2014

📍 Florence, Italy

- FES is an open source C++ framework for the development of "ad-hoc" simulation software aimed at a rapid implementation of novel numerical methods based on the Galerkin method. Core formulations validated reusing meshes from commercial packages (Comsol, HFSS)

## Spectral domain FEM model order reduction

### Universität des Saarlandes

📅 10/2009 - 02/2010

📍 Saarbrücken, Germany

- Developed in Matlab efficient near-to-far-fields formulations for fast electromagnetic radiation computation in large finite elements problems exploiting model order reduction with spectral interpolation for beam steering and pattern angles
- Modeled a large patch antenna array, assessing accuracy and performances through mesh/model export from Ansoft HFSS v11

## RS-232 modem in ISM 868 MHz band

### University of Florence

📅 01/2007 - 04/2007

📍 Florence, Italy

- Designed and prototyped an 868 MHz wireless link for a ground penetration radar remote control over RS-232 protocol
- C-coded the PIC microcontroller FW and optimized in Assembly to guarantee the full-duplex operation over half-duplex TI's CC1100 radio.
- Evaluated the performance of the wireless link in open field