



# LORENZO 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 involving the whole Ansys portfolio & ecosystem.
- 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 Lehrstuhl für Theoretische Elektrotechnik, 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 a high-frequency electromagnetic 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 RFFE).
- 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

- Advised MSc thesis studied with University of Florence to investigate into SAW sensors high frequency numerical modeling for 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

Testing

Management

Sales

Strategy

Leadership

Customer Satisfaction

Finite Element Analysis

RF

Electronics

Semiconductors

Scripting

Matlab

C++

C

Python

- 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

[Baker Hughes, a GE Company](#)

04/2017 - 05/2017

Florence, Italy

- 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

Massa, Italy

## LANGUAGES

Dutch	<div><div></div><div></div><div></div><div></div><div></div></div>
English	<div><div></div><div></div><div></div><div></div><div></div></div>
French	<div><div></div><div></div><div></div><div></div><div></div></div>
German	<div><div></div><div></div><div></div><div></div><div></div></div>
Italian	<div><div></div><div></div><div></div><div></div><div></div></div>
Kirundi	<div><div></div><div></div><div></div><div></div><div></div></div>
Spanish	<div><div></div><div></div><div></div><div></div><div></div></div>

## PUBLICATIONS

### Patents

- L. Ntibarikure, "Module with sensors arrangement," US20180180464A1, 2018. [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>.

- Developed 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, with GPS or daisy-chain clock distribution synchronization
- Hands-on design of 3D assemblies and BOM for timely delivery and cost optimization of certified equipment in less than 4 months (vs typ. 8 months).
- Introduced and consolidated with third party metrology a software based velocity and displacement real-time computation from accelerometers, achieving direct \$150k savings, and subsequent lab processes OPEX benefits.
- Customer value delivered as onsite Turbomachinery Modules structural commissioning with patented solution

## NovalT16 gas turbine, bearings and cooling component tests

### GE Oil & Gas

📅 04/2014 - 10/2015

📍 Florence, Italy

- 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)

## Phased array antennas 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

- 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.

## RECOMMENDATIONS

Mariano Morales

Senior Director, Global Technical Account Management @ Ansys (A Synopsys company)

📅 23/05/2022

📍 Madrid, Spain

"During his tenure with Ansys, Laurent performed consistently above expectations. He showed a tremendous ability to master new technology domains out of his comfort zone, to team up with colleagues from different functional groups and demonstrated an extreme customer focus that made him successful. He is always eager to learn and evolve as a technical leader."

Tiziano Fiore

Head of Global Product Management @ ABB

📅 09/09/2020

📍 Helsinki, Finland

"Laurent is a brilliant engineer with entrepreneurial mindset. He approaches technical problems critically and with a deep knowledge of physics that allows him to handle any engineering challenge. Laurent is a great manager and a strong communicator always willing to help others and share ideas and solutions with anyone in the team. I have learnt a lot from him, sitting side by side, working together on challenges in turbomachinery validation projects. I greatly recommend Laurent for business development and executive roles."