

Ndilokelwa F. Luis

AEROSPACE SYSTEMS ENGINEER · MODELLING, SOFTWARE & TECHNICAL LEADERSHIP

Lisbon Metropolitan Area, Portugal

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Summary

Aerospace Engineering PhD with extensive experience in multidisciplinary modelling, simulation, optimisation, software development and technical leadership. Experienced in translating complex operational and engineering needs into structured technical solutions, coordinating technical work, supporting architecture decisions, and evaluating performance through analysis and verification. Progressed from Software Developer to Team Leader and Solutions Architect across international projects and now applying this combined aerospace and software background to Systems Engineering, MBSE, requirements, architecture, integration and verification.

Skills

Systems Engineering & MBSE	Systems Thinking · Stakeholder and Operational Needs Analysis · Requirements Analysis System Architecture · Functional Decomposition · Interface Analysis · Verification and Validation System Life-Cycle Processes · MBSE · SysML · Technical Trade Studies
Engineering Analysis & Modelling	Mathematical Modelling · Computational Simulation · Multidisciplinary Optimisation Structural Dynamics · Data Analysis · Technical Investigation · MATLAB · Python · FORTRAN
Software & Solution Architecture	Software Development · Functional Analysis · Application Architecture · Solution Design Data Modelling · Process and Workflow Analysis · API Integration · Git
Technical Leadership & Delivery	Technical Team Leadership · Development Coordination · Technical Reviews Stakeholder Communication · Problem Resolution · Testing and Deployment Technical Documentation

Experience

TECHNICAL PRODUCT & SOLUTIONS LEAD | CO-FOUNDER

Portugal and Angola

SKIMA

2024–Present

- Contributed to the early concept and initial development of Kumya Boss, including short-term functional testing.
- Supported the definition of business needs, user workflows and initial product functionality during the exploratory phase.
- Participated in digital transformation consulting activities, including organisational and technology gap analysis.
- Maintain Skima in a limited operational capacity while pursuing a full-time Systems Engineering position.

STEM QUALITY EVALUATOR & AI DATA TRAINER

Remote

INVISIBLE TECHNOLOGIES

2025–Present

- Evaluated engineering, mathematical and programming outputs against defined criteria for accuracy, completeness and compliance.
- Identified defects and inconsistencies, documented findings and contributed to improving evaluation guidance and quality standards.

SOLUTIONS ARCHITECT & TEAM LEADER

The Netherlands

NovioQ

2022–2024

- Progressed from Software Developer to Senior Developer, Team Leader and Solutions Architect through three promotions within nine months.
- Analysed operational and business needs and translated them into application functionality, workflows, data models, integrations and implementable technical solutions.
- Supported solution architecture and technical decision-making across enterprise software projects for international clients.
- Coordinated developers, assigned and reviewed technical work, resolved functional and technical issues, and supported delivery quality.
- Contributed throughout the delivery lifecycle, including analysis, development, testing, deployment, troubleshooting and production support.

SOFTWARE DEVELOPER & JUNIOR TEAM LEAD

Portugal

RUPTION

2021–2022

- Developed MVPs for multidisciplinary international projects, contributing to the clarification of user needs, functional scope, workflows and implementation priorities.
- Began leading a small development team by coordinating tasks, supporting technical decisions and reviewing delivery progress and quality.

SOFTWARE DEVELOPER

Portugal and the Netherlands

OSQUAY

2020–2021

- Contributed to multidisciplinary international software projects, translating defined functional needs into implemented application features.
- Supported development, testing and issue resolution while collaborating with technical and business stakeholders across distributed teams.

AEROSPACE RESEARCHER & POSTDOCTORAL RESEARCHER

Lisbon, Portugal

INSTITUTO SUPERIOR TÉCNICO, UNIVERSITY OF LISBON

2004–2019

- Conducted multidisciplinary aerospace engineering research involving structural dynamics, smart structures, sensing, actuation, vibration control and design optimisation.
- Developed and validated mathematical and computational models representing interactions between structural, sensing, actuation and control behaviour.
- Defined modelling assumptions, design variables, constraints, objective functions and performance measures for complex engineering investigations.
- Performed simulation, optimisation, sensitivity analysis and technical trade studies using MATLAB and FORTRAN.
- Compared analytical, computational and experimental results, investigated discrepancies and refined models and numerical methods, achieving correlation above 95% in selected studies.
- Produced peer-reviewed publications, technical reports and presentations and collaborated across aerospace, mechanical, materials and control disciplines.

Selected Aerospace Projects

EGraB Solar-Energy System – MBSE Redevelopment of the UPA Concept

[ndilokelwa.tech](#) | [GitHub](#)

INDEPENDENT PORTFOLIO PROJECT

2026

- Redeveloping the original UPA concept as a structured Systems Engineering case study covering stakeholder needs, system context, operational scenarios, requirements, functional architecture, interfaces and verification planning.
- Applying MBSE and SysML v2 to establish traceability between needs, requirements, architecture, design decisions and verification evidence.
- Documenting the modelling approach, engineering trade-offs and project artefacts for publication.

UPA – Unmanned Power Airship for Airborne Solar-Energy Generation and Distribution

[AIAA SDM Conference Paper](#)

RESEARCH AND CONCEPT DEVELOPMENT

2011

- Co-developed the concept and preliminary design of an unmanned aerial system for generating solar energy in flight, storing it onboard and distributing power to ground-based users.
- Applied multidisciplinary modelling and optimisation to assess interactions and trade-offs between aircraft configuration, aerodynamics, structures, energy generation, storage, flight operations and power distribution.

Education

Ph.D. in Aerospace Engineering – Passed with Distinction

Lisbon, Portugal | 2016

INSTITUTO SUPERIOR TÉCNICO

Final grade: 18/20

Thesis: Optimal Design of Piezoelectric Sensors and Actuators for Vibration Attenuation in Multilaminated Structures

Integrated BSc/MSc, Aerospace Engineering

Lisbon, Portugal | 2004

INSTITUTO SUPERIOR TÉCNICO

Final grade: 15/20

Certifications

- INCOSE ASEP Certified – 2026
- Systems Engineering Specialization, University of Colorado Boulder – 2026
- TOGAF® 9 Certified – 2023
- PCAP™ – Certified Associate Python Programmer – 2026
- OutSystems Tech Lead and Architecture Specialist

Languages

- English – C2 Proficiency, Cambridge English: Proficiency (CPE), certified 2016
- Portuguese – Native
- Spanish – B2
- French – B1

Selected Award & Achievement

ANA/Inocrowd Lisbon Airport Hangar Optimisation Challenge

Lisbon, Portugal

1ST PRIZE

2017

Designed a MATLAB optimisation algorithm that increased aircraft hangar-allocation efficiency by approximately 7%, winning first prize in an industry challenge sponsored by ANA/Inocrowd.