

# LUÍS ESPÍRITO SANTO

## AI Researcher

📅 7 Sep 1995

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in linkedin.com/luis-c-espirito-santo

🐙 github.com/LESSSE



## RESUME

AI Researcher, quick learner and creative problem solver, deeply interested in new technologies such as generative deep learning and their intersections with arts and cognitive sciences. Likes to travel, to cook and to play games and everything that joins maths and creativity.

## PROFESSIONAL EXPERIENCE

### Image Processing Researcher | INCM

📅 Jun 2020 – Ongoing 📍 Lisbon, Portugal

- Research on liveness detection

INCM

### Data Engineer | CERN

📅 Feb 2019 – Ongoing 📍 Geneva, Switzerland

- Development of ETL procedures [Java, Pentaho]
- Big data storage and manipulation [Oracle, SQL]
- Development of machine learning models [Python, Scikit-learn]
- Sysadmin Tasks [Docker, Gradle, Puppet, Maven]
- Innovation Activities [Spark, Kafka, Genetic, Clustering]



### Deep Learning Researcher | INESC-ID

📅 Jul 2018 – Dec 2018 📍 Lisbon, Portugal

- Research in generative deep models for M.S. thesis [GAN's, RBM's]
- Development of generative models for music [Python, Tensorflow]
- Visualization of musical data [Numpy, Pandas, Matplotlib]



### Assistant Teacher | IST-UL

📅 Sep 2017 – Feb 2018 📍 Lisbon, Portugal

- Lecturing on computer networks [Network Protocols, TCP/IP]
- Creation of classes material [Vagrant, Virtualization]



## EDUCATION

### M.S. in IT Engineering | IST-UL

📅 Sep 2016 – Jun 2019 📍 Lisbon, Portugal 🎓 3.80/4.00

- Intelligent Systems [NLP, ML, DSS, Agents, Expert Systems]
- Theoretical Computer Science [Networks, Complexity, Logics]
- Extra [Neuroengineering, 3D Programming, Parallel Computing]



### B.S. in IT Engineering | IST-UL

📅 Sep 2013 – Jul 2016 📍 Lisbon, Portugal 🎓 3.92/4.00

- Maths [Calculus, Algebra, Probabilities, Discrete Maths]
- Physics [Mechanics, Waves, Electromagnetism, Optics]
- Programming [Data Structures, Algorithms, Paradigms]
- Computers [Architecture, Networks, OS, DB, UI]
- Management [Software Engineer, Modelling, Economics, Ethics]



## PROJECTS

### </> MuCaGEx

Music Categorical Generation  
Experiments using deep structures in tensorflow

### </> pygmidi

Python library to assist symbolic music datasets creation and evaluation

### </> Concept Learning Agents

Model of how agents can learn and discover new concepts arranged in a hierarchy



### History of Tech in Concert

Concert about technology and music

## AWARDS



### Diploma of Academic Merit

Instituto Superior Técnico, 2016–2018



### Diploma of Academic Excellence

Instituto Superior Técnico, 2013 – 2016

## INTERESTS

Artificial Intelligence | Machine Learning | Computational Creativity | Maths | Computation | Philosophy of Science | Networks | Music Composition | Sound Design | Computer Graphics | Neuroscience

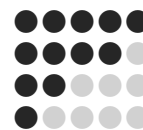
## LANGUAGES

Portuguese

English

French

Spanish



## PUBLICATIONS



### Master Thesis

"Automatically Generating Novel and Epic Music Tracks: Exploring Computational Creativity using Deep Structures against Music"

## GROUPS

CysMus – Group of Studies in Music and Cyberculture

🌐 cysmus.weebly.com

✉ 26 C, Av. de Berna, Lisbon, Portugal

## PUBLIC PRESENTATIONS

Implementing Generative Deep Models for Music: toolbox and let it sound!

**CERN Spring Campus 2019, CERN**

📅 Sep 2019

📍 TUHH, Hamburg, Germany

A musicological quest: searching for epicness in computer generated music

**IV Workshop do CysMus, CysMus, CESEM**

📅 Jun 2019

📍 FCSH, Lisbon, Portugal

The Musical Neuron: an introduction to musical training and generation using ANN

**III Workshop do CysMus, CysMus, CESEM**

📅 Jun 2018

📍 FCSH, Lisbon, Portugal

## AI HIGHLIGHTS

Neural Networks and Deep Learning Course

**Coursera**

📅 Jul 2019 – Ongoing

- Attending Andrews Ng's courses on Neural Networks (Python)

Webinar on Agile Practices for Data Science

**ACM Learning Center, ACM**

📅 May 2019

- Attended to ACM's webinar on "Agile Data Science: Achieving Salesforce - Scale Machine Learning in Production" by Sarah Aerni

Webinar on Explainable Machine Learning

**ACM Learning Center, ACM**

📅 Sep 2018

- Attended to ACM's webinar on explainable AI applied to Healthcare domain by KenSci

RedGlue Machine Learning Workshop

**RedGlue**

📅 Sep 2018

📍 Lisbon, Portugal

- Attended to a one week workshop on machine learning with python (scikit-learn) and azure for detecting fraud in credit transactions

Webinar on Adversarial Machine Learning

**ACM Learning Center, ACM**

📅 Jul 2018

- Attended to ACM's webinar on improved machine learning using adversarial paradigms by Ian Goodfellow

Interdisciplinary College Spring School

**IK 2017**

📅 Mar 2017

📍 Möhnesee-Günne, Germany

- Attended to the event with courses on creativity and intelligence in brains and machines

## OTHER SKILLS



**Driving License**

B B1



**Operative Systems**

Linux Windows



**Modeling Languages**

UML SysML BPMN



**Programming Languages**

Java Lisp Python Prolog C

C++ C#



**DevOps Tools**

Git Atlassian Tools IntelliJ

Bash



**Web Tools**

HTML5 Javascript CSS

Web Audio



**Office and Presenting Tools**

Microsoft Office Open Office

Latex Jupyter Notebook



**Audio Tools**

LMMS Audacity Sibelius

Finale Encore Musecore



**Image Tools**

InkScape GIMP Pencil



**Video Tools**

Adobe Premiere

Adobe After Effects HitFilm



**Game Engines**

Unity

# MUSIC HIGHLIGHTS

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This is not an happening!

## FCSH/NOVA

📅 Mar 2017 – Oct 2017 📍 Lisbon, Portugal

- Singer, performer, composer and member of artistic coordination
- Music-theatrical performance in honor of Constança Capville
- Repertoire: Stravinsky, John Cage, Gabriel Fauré, Stockhausen, The Beatles, Carlos Caires, António de Sousa Dias and many others

## Festa do Avante Concert

### Coro Sinfónico Lisboa Cantat

📅 Sep 2017 📍 Lisbon, Portugal

- Assistant Singer in *Festa do Avante 2017*
- Repertoire: Russian choir traditional songs including Borodin's Polovtsian Dances

## Concerts all over Portugal and Colombia

### Tuna Académica de Lisboa

📅 Feb 2016 – Jan 2019 📍 Lisbon, Portugal

- President, composer, singer, saxophone player and member of artistic coordination
- Repertoire: Portuguese traditional music, original songs and short excerpts of any other kind of music

## Clave ao Sol

### Câmara Municipal de Castro Verde

📅 Feb 2016 📍 Castro Verde, Portugal

- Summer School on jazz and improvisation
- Repertoire: Jazz classics

## Introduction to Programming for Musicians and Digital Artists

### Coursera

📅 Mar 2016 – May 2016

- Online Course
- Development of simple projects using Chuck language

## Concerts in Lisboa and Alentejo

### Sine Nomine Choir

📅 Oct 2013 – Sep 2018 📍 Lisbon, Portugal

- Co-founder, singer, composer and co-conductor
- Repertoire: Religious songs throughout the times, spiritual african, portuguese repertoire, christmas carols, video games

## CD "Músicas com Histórias" recording

### Conservatório Regional do Baixo Alentejo

📅 Jun 2013 📍 Castro Verde, Portugal

- Singer and performer
- Repertoire: Music throughout the times

## Concerts and Wind Bands Workshops around Portugal

### Banda Filarmónica 1º de Janeiro

📅 Oct 2006 – Oct 2010 📍 Castro Verde, Portugal

- Saxophone Player
- Repertoire: all kinds of wind band repertoire