# Nahuel **Costa Cortez**

Phd candidate in Artificial Intelligence

## Contact

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## Research interests

Prognostics and health management
Decision Making Modeling
Explainable AI
Deep Learning
Date - Date

## Core Competencies

Problem formulation
Critical thinking
Organization
Open-mindedness

## Computer Skills

Proficient with Python,
Java,
C++,
C,
Matlab,
LaTeX

## Links

 NahuelCostaCortez
in nahuel-costa-cortez
G mrdKa3EAAAAJhl=es

## Languages

English and Spanish

## Education

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|---|---|---|
| **PhD** Artificial Intelligence | University of Oviedo | **2020-Present** |
| **MA** Computer Science | University of Oviedo | **2019-2020** |
| **BA** Computer Science | University of Oviedo | **2015-2019** |

## Research Experience

**Computer Science Department**  University of Oviedo **February 2021-Now**
*Lecturer*
Languages and computer systems

**Hawaii National Energy Institute**  University of Hawaii at Manoa **2022**
*Visiting Researcher*
Research and development of Machine Learning tools for the diagnosis and
prognosis of lithium-ion batteries

**Special Session Organizer**  Milano **2022**
*International Conference on Information Processing and Management of Uncertainty in
Knowledge-Based Systems*
Organized special session on Machine Learning for Partially Labeled Data

**Metrology and Modeling Lab**  University of Oviedo **2019-2021**
*Research technician*
Development of computational health models for the treatment of rechargeable
batteries

**Metrology and Modeling Lab**  University of Oviedo **2019-2020**
*Research intern*
Analysis of intracardiac electrocardiograms for the prediction of cardiovascular
diseases

## Publications

## Journal articles

Data-driven Direct Diagnosis of PV Connected Batteries
*Matthieu Dubarry,* **Nahuel Costa**, *Dax Matthews*
Under review at Nature Communications, preprint available on ResearchSquare (2022)

Remaining Useful Life Estimation Using a Recurrent Variational Autoencoder
**Nahuel Costa**, *Luciano Sánchez*
Under review at Logic Journal of the IGPL (2022)

Li-ion battery degradation modes diagnosis via Convolutional Neural Networks
**Nahuel Costa**, *Luciano Sánchez, David Anseán, Matthieu Dubarry*
Journal of Energy Storage (2022), 55, 105558

RUL-RVE: Interpretable assessment of Remaining Useful Life
**Nahuel Costa**, *Luciano Sánchez*
Software Impacts (2022), 10032

Variational encoding approach for interpretable assessment of remaining useful life
estimation
**Nahuel Costa**, *Luciano Sánchez*
Reliability Engineering System Safety (2022), 222, 108353

Semi-Supervised Recurrent Variational Autoencoder Approach for Visual Diagnosis
of Atrial Fibrillation
**Nahuel Costa**, *Luciano Sánchez*
IEEE Access (2021), 9, 40227-40239

Graphical Analysis of the Progression of Atrial Arrhythmia Using Recurrent Neural Networks
**Nahuel Costa**, *Jesús Fernández, Inés Couso, Luciano Sánchez*
International Journal of Computational Intelligence Systems (2020), 13 (1)

## Conference and workshop papers

Graphical analysis of the progression of atrial arrhythmia through an ensemble of Generative Adversarial Network Discriminators
**Nahuel Costa**, *Jesús Fernández, Inés Couso, Luciano Sánchez*
Conference of the European Society for Fuzzy Logic and Technology (EUSFLAT), 2019, Praga, Czech Republic

Remaining Useful Life Estimation Using a Recurrent Variational Autoencoder
**Nahuel Costa**, *Luciano Sánchez*
International Conference on Hybrid Artificial Intelligence Systems, 2021, Bilbao, Spain

Explainable condition monitoring from imprecise information
**Nahuel Costa**, *Luciano Sánchez*
Conference of the Spanish Association of Artificial Intelligence (CAEPIA), 2021, Málaga, Spain

Informed Weak Supervision for Battery Deterioration Level Labeling
*Luciano Sánchez*, **Nahuel Costa**, *David Anseán*
International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU), 2022, Milano, Italy

Weakly supervised learning of the motion resistance of a locomotive powered by liquefied natural gas
*Luciano Sánchez, Pablo Luque, Daniel Álvarez-Mántaras, José Otero*, **Nahuel Costa**
International Workshop on Soft Computing Models in Industrial and Environmental Applications (SOCO), 2022, Salamanca, Spain

## Teaching Experience

**Lecturer** University of Oviedo **2022-2023**
*Introduction to programming, Algorithms*
Bachelor's Degree in Computer Engineering in Information Technology
*Algorithms*
Bachelor's Degree in Data Science
*Operating Systems (EN)*
Bachelor's Degree in Software Engineering

**Lecturer** University of Oviedo **2021-2022**
*Algorithms*
Bachelor's Degree in Data Science
*Operating Systems (EN), Databases*
Bachelor's Degree in Software Engineering
*Introduction to programming, Algorithms*
Bachelor's Degree in Computer Engineering in Information Technology

**Lecturer** University of Oviedo **2020-2021**
*Operating Systems (EN), Databases, Programming Methodology (EN)*
Bachelor's Degree in Software Engineering

# Awards

**Mobility Fellowship** <span style="float:right">University of Oviedo **2022**</span>
Regional competition (€3,400)

**Second best thesis project - Doctoral Consortium** <span style="float:right">Conference of the Spanish Association of Artificial Intelligence **2021**</span>
For the thesis project "Explainable condition monitoring from imprecise information"

**Best master's thesis project** <span style="float:right">University of Oviedo **2020**</span>
For the project "Diagnosis of Atrial Fibrillation by intelligent analysis of intracardiac of recordings"

**Mentee** <span style="float:right">IMFAHE **2019**</span>
Chosen as one of the 10 students selected from the University of Oviedo to participate in the professional and academic development programs of excellence promoted by the International Mentoring Foundation for the Advancement of Higher Education (IMFAHE). Mentored by Dr. Francisco Costela, researcher at Schepens Eye Research Institute, Harvard Medical School.

**Master Fellowship** <span style="float:right">Principado de Asturias **2019**</span>
Full tuition scholarship (€2,000)

**Most innovative Idea** <span style="float:right">EbIC University Awards **2019**</span>
For the project "Preprocessing and intelligent treatment of intracardiac electrocardiograms" (€400)

**Best undergraduate thesis project** <span style="float:right">University of Oviedo **2019**</span>
For the project "Pre-processing and intelligent treatment of intracardiac electrocardiograms"

**Santander CRUE CEPYME Scholarship** <span style="float:right">Banco Santander **2018**</span>
Internship in IT related companies - Bytacora Soluciones Informáticas

**Undergraduate Fellowship** <span style="float:right">Spanish Government **2015-2019**</span>
Full tuition scholarship (€2,000/yr) and stipend (€3,000/yr) for 4 years

# Reviewing

**Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU)** <span style="float:right">**2022**</span>
Reviewed three conference submissions

**IEEE Journal of Biomedical and Health Informatics** <span style="float:right">**2021**</span>
Reviewed one journal article

**International Journal of Approximate Reasoning** <span style="float:right">**2021**</span>
Reviewed one journal article

**The Journal of supercomputing** <span style="float:right">**2021**</span>
Reviewed one journal article

# Courses

**Peer Reviewer Course** <span style="float:right">Online **2022**</span>
*Elsevier*

**Identify and train your research talents** <span style="float:right">Online **2021**</span>
*University of Oviedo*

**Convolutional Neural Networks in Tensorflow** <span style="float:right">Online **2021**</span>
*DeepLearning.AI*

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|---|---|
| **Natural Language Processing in TensorFlow** | Online **2021** |
| *DeepLearning.AI* | |
| **Sequences, Time Series and Prediction** | Online **2021** |
| *DeepLearning.AI* | |
| **Quarter Course in Professional Development** | Online **2020** |
| *IMFAHE* | |
| **How to present a scientific communication** | Online **2021** |
| *University of Oviedo* | |
| **Practical Deep Learning for Coders, v3** | Online **2019** |
| *FastAI* | |
| **Android development from scratch** | Online **2019** |
| *Udemy* | |

## **Cer**tifications

Certified Peer Reviewer

Professional Certificate TensorFlow Developer

Elsevier Reviewer Certificate

UNIVERSITY OF **CAMBRIDGE** Certificate in Advanced English

## **Oth**er Experience

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|---|---|
| **Software Developer, Internship** | Gijón, Spain **2018** |
| *Bytácora Soluciones Informáticas* | |
| Development of a help desk ticketing system - Enterprise Resource Planning (ERP) – Odoo modules – Pycharm – Python – XML | |
| **Software Developer, Internship** | Gijón, Spain **2018** |
| *PSWService* | |
| Web app development – Ionic – AngularJS (HTML5, CSS, Javascript) – PHP | |