

FELIPE NONATO CARDOSO SOBRAL JUNIOR

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EDUCATION

PhD Student Computer Science (University of Tsukuba, Japan)

Expected 03/2027

Laboratory of Evolutionary Computation

MEXT Scholarship - Human Centered A.I Society Program

Keywords: Artificial Life, Open-endedness, Simulation, Softrobots

Masters Computer Science (University of Tsukuba, Japan)

Mar 2024

Laboratory of Evolutionary Computation

MEXT Scholarship - Human Centered A.I Society program

Thesis Title: Generating Stories from A.I.Wolf using graph analysis of game logs

Keywords: Graphs, Knowledge Graphs, Narrative Generation, A.I.Wolf.

Masters Electrical Engineering (Federal University of Espirito Santo, Brazil)

Oct 2021

Laboratory of power electronics and electrical drive

CAPES Scholarship

Thesis Title: Optimization of the Electrical Power System of the State of Espírito Santo considering the weighted sum of performance indexes and the expansion of power generation through intermittent renewable energy sources.

Keywords: Electrical Power Systems, Renewable Energy Sources, Markov Chains, Optimization

BA Electrical Engineering (Federal University of Espirito Santo, Brazil)

2018

PROFESSIONAL EXPERIENCE

University of Tsukuba

Tsukuba, Japan

Data Science Teaching Assistant

04/2023 - 06/2023

- Attend to Data Science class (twice a week) and support the students with questions about Microsoft's Excel functionalities.

BeLight Energia

Vitoria, Brazil

Intern

07/2017 - 04/2018

- Conducted extensive research for startup company projects. (Clean Development Mechanism)
- Prepared project presentations and reports to assist senior staff. (Electrical design/Solar power plants)
- Facilitated successful completion of projects from concept to launch. (Electrical design/Solar power plants)

CCAA

Vitoria, Brazil

English Instructor

02/2011 - 02/2011

- Taught English classes in groups of children, teenagers and adults following CCAA's methodology.
- Built a professional and positive relationship with students, encouraging engagement and collaboration.

LANGUAGE & SKILLS

Languages

Portuguese (Native)

English (Toefl iBt 103)

Japanese (Basic - Currently Studying with private teacher)

Other

Python, Lua, GDscript, Matlab, Excel, NetworkX, Pandas, Github, Vscode
optimization, data analysis, scientific writting, research presentation.

Misc.

University of Tsukuba

Tsukuba, Japan

Member of AEBUT - Brazilian Student Association of University of Tsukuba

08/2022 - Current

- Organizing events, participating in volunteer activities, supporting students with their needs regarding adaptation to Japan.

University of Tsukuba

Tsukuba, Japan

Student Ambassador

08/2023 - 03/2024

- Guided embassy official during University of Tsukuba 50th anniversary ceremony.
- Guided Brazilian staff from state of Paraná, Araucária Foundation and Western Paraná University during visit to University of Tsukuba.

Artificial Life Conference 2023

Hokkaido, Japan

Student Volunteer Alife Hokkaido

06/2023

- Supporting staff during event reception, day-to-day operation.

CollaboTICS 2022

Online

Committee member

12/2022

- Supporting staff during online event operation.

Federal University of Espirito Santo

Vitoria, Brazil

Member of Electrical Engineering Education and Tutorial Program

07/2014 - 07/2016

- Engaged in research, teaching and extension activities with a group of students supervised by a professor.
- Project leader of English conversation and grammar review group for undergraduate students.
- Member of Arduino teaching group.

PROJECTS

PhD Research

University of Tsukuba, Japan

Softbodies simulation in GODOT game engine

<https://github.com/non4to/SoftbodyGodot>

- Cells use energy at each step and to move, they can also attach and de-attach themselves.
- Attached cells share the energy. It turns into an energy bank, if this bank depletes, every cell inside dies.
- Cells still control their own movement when attached.
- Food sources have collision and can be moved by cells.

PROCJAM 2024

RGPlants in pygame

<https://github.com/non4to/PROCJAM-2024>

- Simulation done as submission to PROCJAM 2024. We can see emergent color patterns in the screen by adjusting the simulation parameters.
- Each pixel represents a plants with RGB code as a gene. The pixel's color is determined by a function of the genes of its neighbors.
- Each step, each plant may do nothing, reproduce (mutation probability) or die.

Personal Project 1

Rhymming and Saying

<https://github.com/non4to/Rhymming-and-Sayings>

- Context-free grammar that uses wordnet to look for words that rhyme with selected sayings.
- Words of specific classes (adjective, adverbs, etc) have their last phoneme compared to the last phoneme of the saying to ensure they rhyme. Sometimes we get funny outputs.

Personal Project 2

Evolutionary Character Files

<https://github.com/non4to/CharacterFiles>

- Done with Python. Used genetic algorithm to create character files for a TTRPG that I played with friends.
- A file was received as an input together with the desired % of wins. A file population is generated and then goes through evaluation, recombination, mutation, and selection until a certain threshold.)
- It was a cool way to get enemies balanced with the DungeonMaster's intention. (Or a way for players to test their character files