Felipe Nonato Cardoso Sobral Junior

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Education

(Expected March 2027) Phd Student Computer Science - University of Tsukuba (Japan)
Laboratory of Evolutionary Computation
MEXT Scholarship: Human Centered A.I Society program
Keywords: Artificial Life, Open-Endedness, Genetic Algorithms, Markov Chains, Softrobots

(Mar 2024) Msc. Computer Science - University of Tsukuba (Japan)
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.Felipe
Keywords: Graphs, Knowledge Graphs, Narrative Generation, A.I.Wolf.
Skills: Python, Linux, NetworkX, Vscode, GitHub, Knowledge Graphs, Narrative Generation, Scientific Writing, Data Analysis, Research Presentation.

(Oct 2021) Msc. Electrical Engineering - Federal University of Espírito Santo (Brazil)
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.
Skills: Python, Pandas, Matlab, Excel, Optimization, Scientific Writing, Data Analysis, Research Presentation

(2018) BA Electrical Engineering - Federal University of Espírito Santo (Brazil)

Publications

(2020) Sobral Júnior, Felipe N. C; Rueda Medina, Augusto C.; **Performance indexes optimization applied to the Electrical System of Espírito Santo.** In: XXIII Congresso Brasileiro de Automática (CBA) 2020, Santa Maria (Virtual), RS, Brasil. Available in: https://doi.org/10.48011/asba.v2i1.1127

(2016) Soares, R. B. ; Cunha, C. C. M. ; Menegaz, P. J. M. ; Miranda, C. M. ; Reis, I. A. ; Sobral Junior, F. N. C. ; Astore, L. M. ; Lima, B. S. ; Barroso, B. S. ; Caldeira, T. ; "**Sandwich undergraduation" as an internalization strategy: UFES's Electrical Engineering students experience.** In: XLIV CONGRESSO BRASILEIRO DE EDUCAÇÃO EM ENGENHARIA, 2016, Natal. Anais Cobenge 2016, 2016.

Professional Experience

(Apr 2023 - July 2023) Teaching Assistant on Data Science - University of Tsukuba
Support the teacher in class, help students with excel and statistics.
Software: Excel

(Jul 2017 - Apr 2018) Internship - BeLight Energia
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)
Software: Excel, Autocad

(Feb 2011 - Feb 2012) English Teacher - CCAA
Established positive classroom management boundaries to create a safe, known environment for behaviour among students.
Graded students work based on completion, timeliness and accuracy and kept detailed records of grades.
Successfully improved English-speaking students' English grammar and vocabulary levels through written and interactive activities.

Other Activities

(Aug 2022 - Current) Member of AEBUT - Brazilian Student Association of University of Tsukuba – University of Tsukuba (Japan)
Organizing events, participating in volunteer activities, supporting students with their needs regarding adaptation to Japan.

(Aug 2023 – Mar 2024) Student Ambassador – University of Tsukuba (Japan)
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.

(July 2023) Student Volunteer Alife - Alife Hokkaido, Japan
Supporting staff during event reception, day-to-day operation.

(Dec 2022) Committee member of CollaboTICS 2022 - University of Tsukuba (Japan)
Supporting staff during online event operation.

(Jul 2014 – Jul 2016) Member of Electrical Engineering Education and Tutorial Program – Federal University of Espírito Santo (Brazil)
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.

Language Proficiency

Portuguese (Native)
English (TOEFL iBt 103 - 2023)
Japanese (Basic - Currently studying with private teacher)

Projects

EvoExperiment (2024)
Done with python, using pygame for visualization. I wanted to integrate Markov chains to a GA. Plants in this environment can stay idle, eat or reproduce. Transition matrix determines how the state transition happens. These matrices may mutate by changing the transition probabilities. Different levels of energy were considered to different state levels. Looking forward to adding more interaction between plants.

EvoPlants - PROCJAM2024 (2024)
Done with python and pygame for visualization. Entry to procjam 2024. Each pixel may be occupied by a plant that has an RGB code as a gene. The color of each pixel is an average of the gene of its neighbors. Plants may either die, mutate or multiply themselves to its neighbors, each action determined by chance. Changing mutation rates or included crossover between genes creates different color patterns in the screen. I intend to add more possible combinations. The web version needs to be updated.

Bloop!Jump - LOWRESJAM2023 (2023)
Done with pico8. Entry to lowresjam 2023. A (difficult) platformer where a blob's goal is to get to the top of the stage. The blob can move left and right, its jump can be charged and if it hits a wall mid-jump, its trajectory can't be changed.

Rhymming and Saying (2023)
Done with Python. A formal 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.

RPG NPC file creator (2023)
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 population of files 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 me to test my character files)

Arduino Robot (2017)
Built with classmates during undergraduation. A wheeled robot that used ARDUINO-UNO to process signals from ultrasound, clapper, magnetometer sensors and an app that could control the robot. The first three were used when the robot was on autonomous mode, and the last and a user was controlling it.