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Renan F. Cunha

Computer Science Undergraduate

Education

2017–Today **Bachelor's Degree**, *Universidade Federal do Pará (UFPA), Belém, Brazil*, BSc in Computer Science at Faculdade de Computação.
GPA - 9.375/10. Top 0.28 %

Experience

2019–Today **Research Internship**, *LabVIS–FalaBrasil*.
Using reinforcement learning and neuroevolution to perform utterance copy with the Klatt formant-based speech synthesizer. Utterance copy is the task of estimating the synthesizer parameters that mimic some given audio. The use of reinforcement learning and neuroevolution is promising as they allow the training directly with unlabeled data (natural audios).

2018–2019 **Research Internship**, *LabVIS–FalaBrasil*.
The goal of this project was to see the feasibility of using Deep Learning, more specifically Long Short Term Memory networks, to perform utterance copy with the Klatt speech synthesizer. We trained LSTMs with synthetic data on the supervised learning paradigm. I also did some research with Human-Computer Interaction (HCI), evaluating alternative computer interaction methods such as mouth-puffing and electromyography sensors for mouse clicking.

Publications

[1] C. Batista, R. Cunha, P. Batista, A. Klautau, and N. Neto, "Utterance copy in formant-based speech synthesizers using lstm neural networks," in *Brazilian Conference on Intelligent Systems–BRACIS*, (Salvador, BA, Brazil), oct 2019. Available at `https://doi.org/10.1109/BRACIS.2019.00025`.

[2] E. Campos, D. Martins, S. dos Santos, R. Cunha, C. Batista, and N. Neto, "Evaluating alternative interfaces based on puff, electromyography and dwell time for mouse clicking," in *Proceedings of the 18th Symposium Brazilian on Human Factors in Computer Systems - IHC*, (Vitória, ES, Brazil), oct 2019. Available at `https://doi.org/10.1145/3357155.3358445`.

[3] E. Campos, A. Freitas, R. Cunha, C. Batista, B. Meiguins, and N. Neto, "A non-conventional interaction on computational systems based on mouth puffing," in *Posters of the 17th Symposium Brazilian on Human Factors in Computer Systems - IHC*, (Belém, PA, Brazil), 2018. Available at `https://doi.org/10.5753/ihc.2018.4185`.

Languages

Portuguese Native Speaker.

English Advanced.

Computer Skills

Languages **Advanced:** Python, LaTeX. **Basic:** C, C++, Java.

Toolkits Numpy, Matplotlib, Pandas, Keras, OpenAI Gym.

Projects

2019 **DrawToCode**, *Project Analysis and Design*.
DrawToCode receives a UML diagram from Draw.io and makes code from it. This software was developed as the final project of the *Project Analysis and Design* course. `https://github.com/CoffeeOverflow/DrawToCode`.

2019 **Evaluating the Dropout Technique with NeuroEvolution for Reinforcement Learning Problems**, *Genetic Algorithms*.
In the final project of the *Genetic Algorithms* course, I evaluated how the dropout technique affects the performance of neuroevolution algorithms for reinforcement learning problems. `https://www.youtube.com/watch?v=c1wpbA7HvAk`.

Awards

2018 **1st Place - II Northern Programming Marathon - Pará Headquarters**.
Inspired on the International and National Programming Marathons. This competition was created to encourage competitive programming on the northern region of Brazil. The competition is aimed at high school, undergraduate and graduate students from the seven states in the northern region: Acre, Amapá, Amazonas, Pará, Rondônia, Roraima and Tocantins. The team I composed won first place of the Pará state and was placed 9th in all the northern region. `http://tiny.cc/bgruiz`.