

Rafael Katopodis

rkatopodis.github.io | rafaelkatopodis@gmail.com

SKILLS

LANGUAGES

Python
Julia
C/C++
SQL

LIBRARIES

NumPy
Pandas
SciPy
matplotlib
scikit-learn
PyTorch

OS

Linux
Windows

LINKS

Github:// [rkatopodis](#)
LinkedIn:// [rafaelkatopodis](#)

COURSEWORK

GRADUATE

Probability and Statistics for ML
Reinforcement Learning
Introduction to Robotics
Weightless Neural Nets (*Teaching Asst 2x*)

UNDERGRADUATE

Data Mining
Artificial Intelligence
Linear and Nonlinear Programming
Concurrent and Parallel Programming
Internet of things

EDUCATION

COPPE/UNIVERSIDADE FEDERAL DO RIO DE JANEIRO

M.Sc. IN COMPUTER AND SYSTEMS ENGINEERING

June 2019 - January 2022

Thesis title: "Reinforcement Learning with Weightless Neural Networks"

UNIVERSIDADE FEDERAL DO RIO DE JANEIRO

B.Sc. IN COMPUTER SCIENCE

March 2015 - July 2019

magna cum laude

Cumulative Score: 9.2/10

RESEARCH EXPERIENCE

LABZERO (WEIGHTLESS NEURAL NETS LAB) | M.Sc. RESEARCHER

2019 - 2021

- Developed new weightless neural networks architectures suitable for online and nonstationary learning
- Investigated the use of weightless neural nets for policy search and value function approximation in the context of reinforcement learning
- Presented our findings at an international conference (recording)

LABROB (ROBOTICS LAB) | UNDERGRADUATE RESEARCHER

2017 - 2019

- Developed Arduino-based control systems for line follower and sumo robots using state machines and PID regulators
- Designed a navigation system for a wheeled robot, using encoders and inertial sensors' readings for odometry and a mounted camera paired with a convolutional neural network for recognizing goals

INDUSTRY EXPERIENCE

STONE AGE | SOFTWARE ENGINEER INTERN

September 2017 - May 2019, Rio de Janeiro, RJ, Brazil

- Developed APIs and web apps leveraging C#/ASP.NET Core and TypeScript for a platform that automates customer service processes

HONORS AND AWARDS

2021 Invitation to submit an extended version of our ESANN 2021 paper to the Neurocomputing journal

2019 Silver medal - RoboMagellan competition, 2nd Robotics Summit, Joinville

2019 Silver medal - Robot-sumo competition, 15th Winter Challenge, Concórdia

PUBLICATIONS

- [1] R. F. Katopodis, P. M. Lima, and F. M. França. Functional gradient descent for n -tuple regression. In *ESANN*, 2021.
- [2] Z. Susskind, A. Arora, I. D. dos Santos Miranda, L. A. Q. Villon, R. F. Katopodis, L. S. de Araújo, D. L. C. Dutra, P. M. V. Lima, F. M. G. França, M. B. Jr., and L. K. John. BTHOWeN: Weightless neural networks for high-speed, low-energy inference on the edge. In *ISCA 2022*, in review.