

# Rafael Katopodis

rafaelkatopodis@gmail.com

## SKILLS

### LANGUAGES

Python  
Julia  
C/C++  
SQL

### LIBRARIES

NumPy  
Pandas  
SciPy  
matplotlib  
scikit-learn  
PyTorch

### OS

Linux  
Windows

## LINKS

Github:// [RafaelFK](#)  
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, 2<sup>nd</sup> Robotics Summit, Joinville
- 2019 Silver medal - Robot-sumo competition, 15<sup>th</sup> 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.