

# LATINOWARE 2020



XVII Congresso Latino-americano  
de Software Livre e Tecnologias Abertas



Realização:



PTI Parque Tecnológico  
Itaipu



ITAIPU  
BINACIONAL

# MICROPYTHON: Transformando a Indústria 4.0 Totalmente em



Daniele Nazaré Tavares



AGENDA LATIN.SEC



HACKATHON  
LATINOWARE 2020



Latinoware e EDU

# SOBRE MIM

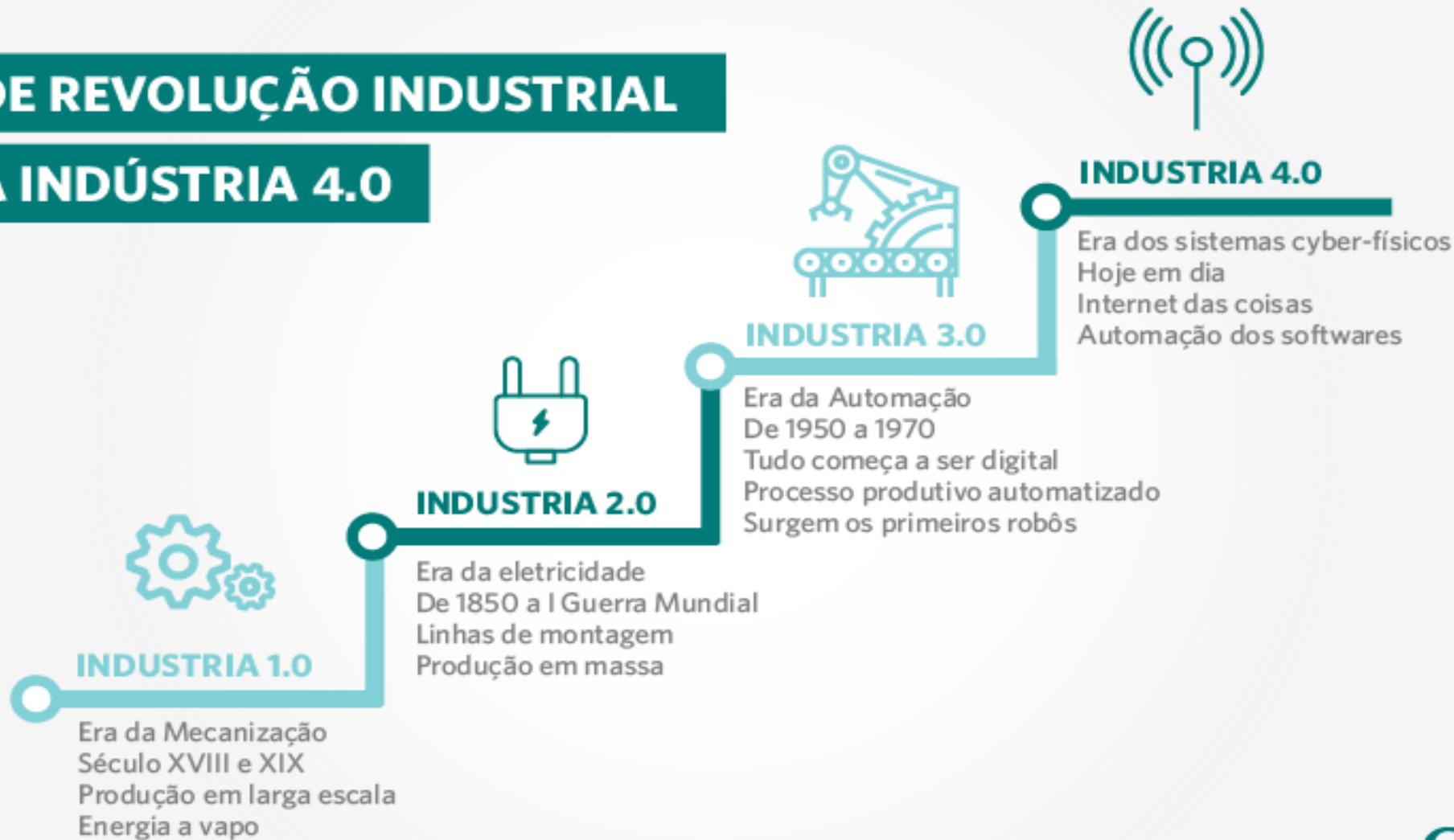


Sou Mineirinha e Bacharel em Engenharia de Computação e contribuo para a comunidade de desenvolvedores ministrando palestra em eventos. Já tive a oportunidade de palestrar no TDC, Brazil JS On the Road, Python Brazil 2019. Além disso faço parte do projeto de Computação Quântica, The Quantum Blockchain Project.

# REVOLUÇÃO INDUSTRIAL

## DE REVOLUÇÃO INDUSTRIAL

## A INDÚSTRIA 4.0



Fonte: [Endeavor, 2020](#)

# 4ª REVOLUÇÃO INDUSTRIAL

*"The scale, scope and complexity of how technological revolution influence our behavior and way of living will be unlike anything humankind has experienced."* ([Technology Innovation Management Review](#))

**Klaus Schwab**

**Engenheiro e Economista**

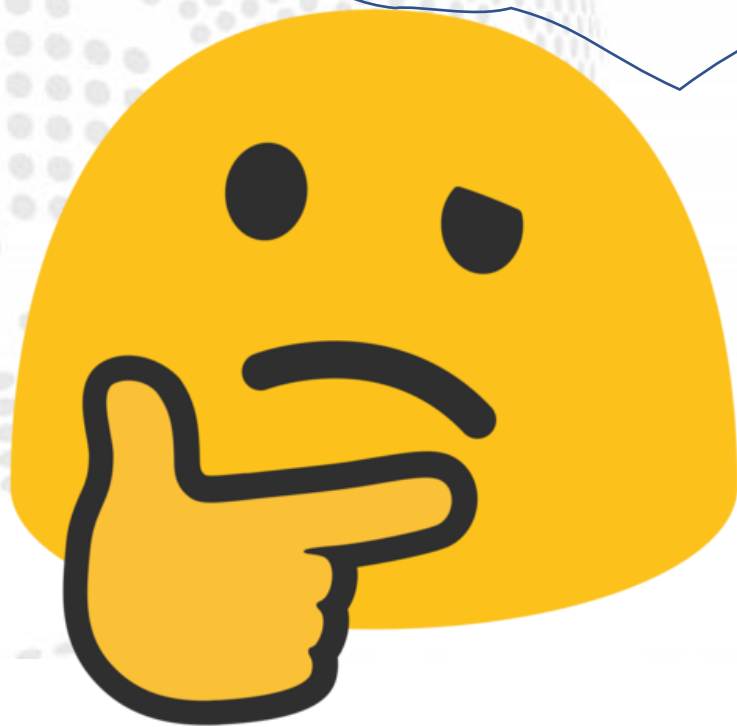
**Fundador e Presidente Executivo World Economic Forum**

**Autor do livro: A Quarta Revolução Industrial**

Como podemos  
potencializar a **Indústria**  
4.0 com



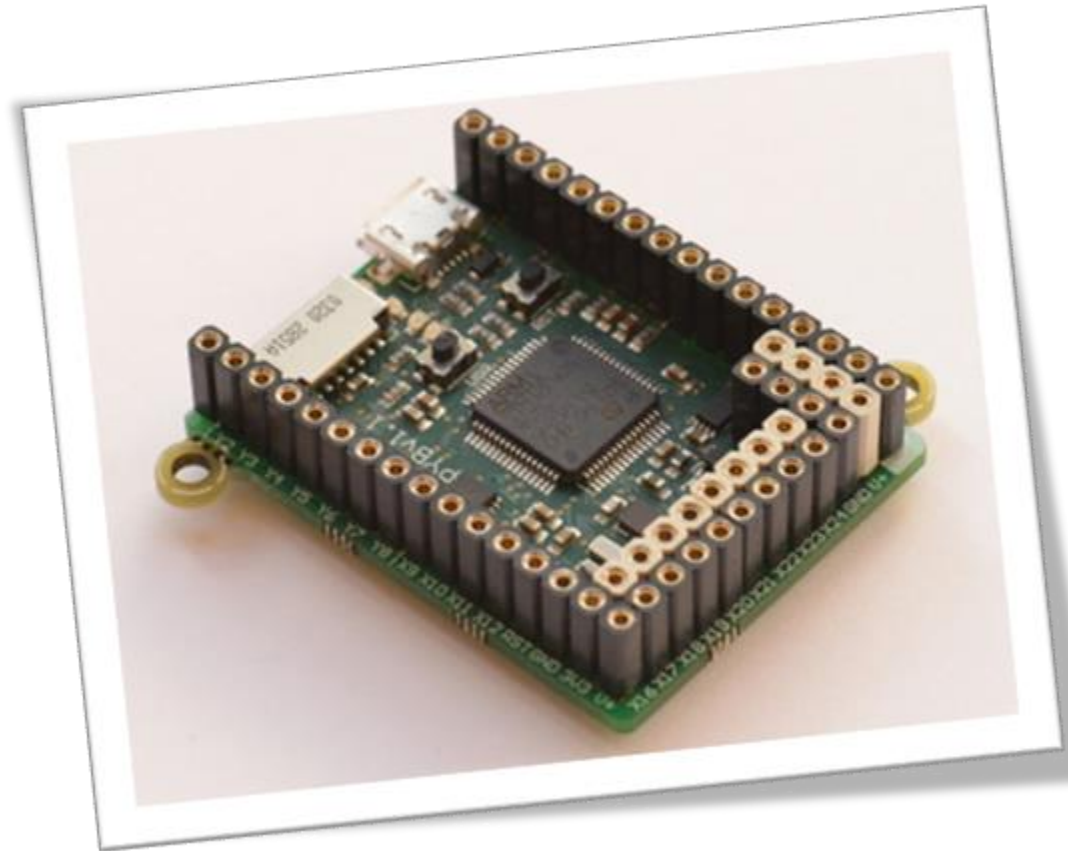
?







**MicroPython**



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*Uma implementação enxuta e otimizada do Python3 , com um pequeno conjunto de Bibliotecas para executar em microcontroladores.*



**MicroPython**

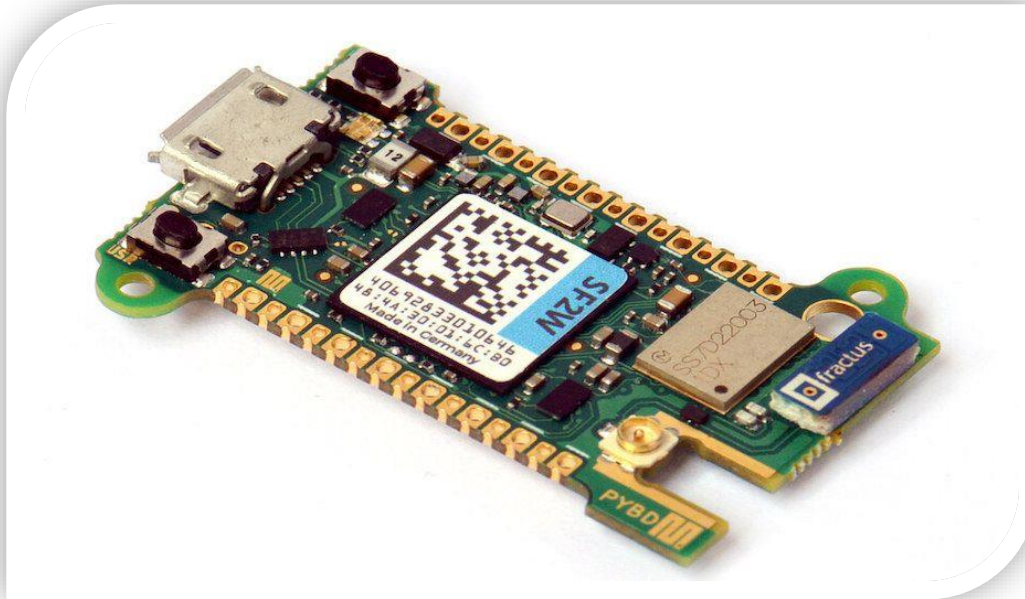


**License**

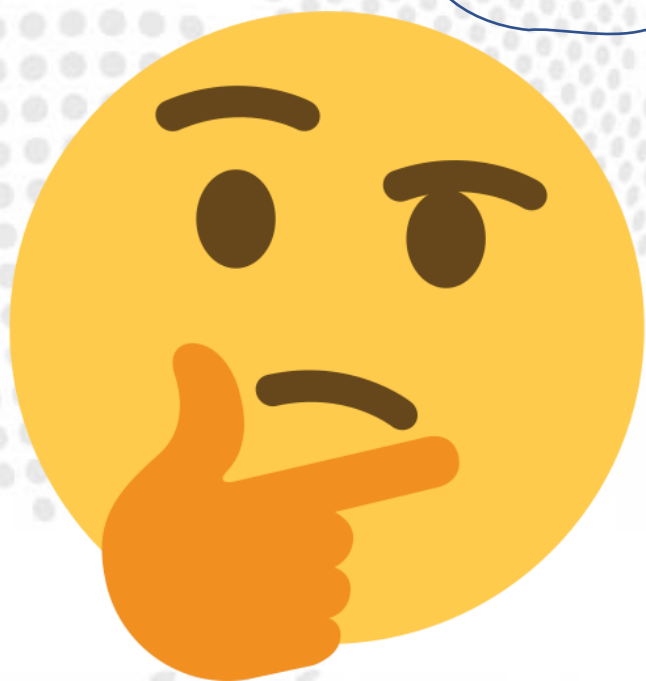
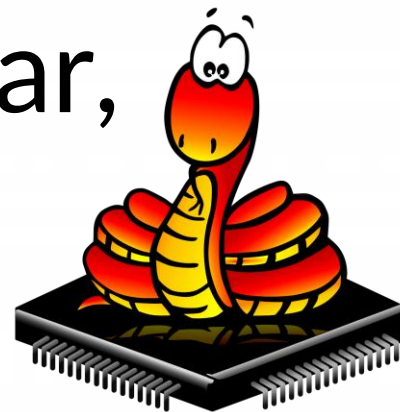
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## Pyboard – Placas exclusivas para MicroPython



Eu quero comprar,  
como eu faço?





COVID-19 update: We are staying healthy and still shipping from our UK location.

Welcome to the official MicroPython store.

Cart: 0 items

All orders are shipped from the UK, and are usually dispatched within 2 working days.

VAT of 20% is included for shipments to the UK and countries within the EU. Purchases for all other countries are exclusive VAT.

We also have [distributors around the world](#).

## Featured



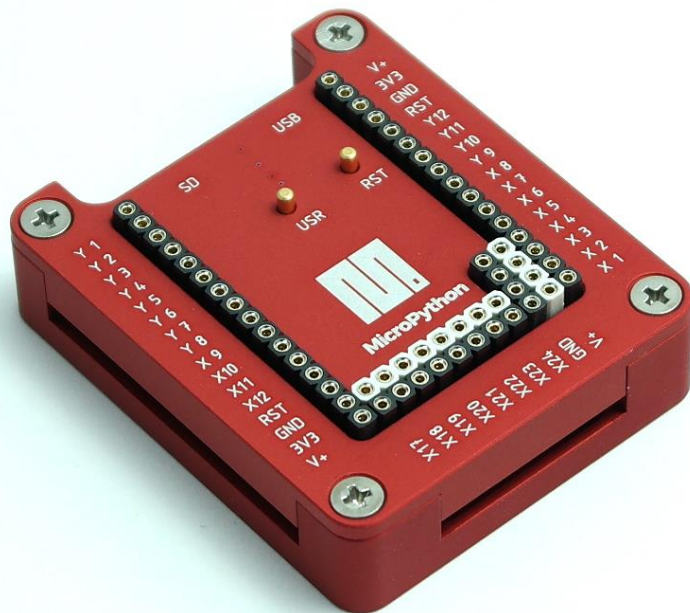
**Programming with MicroPython**  
- by Nicholas Tollervey and  
pyboard ltd.



**MicroPython housing with open  
lid, red**



**Pyboard D-series with  
STM32F722 and WiFi/BT**



*MicroPython é compactado o suficiente para caber em 256k de espaço e executar com apenas 16k de RAM.*





# Arquitetura Pyboard



Microcontrolador STM32F405RG



168 MHz Cortex M4 CPU e Hardware com Ponto Flutuante



1024KiB flash ROM e 192KiB RAM



1 DFU bootloader na ROM ficar mais fácil dar um upgrade no firmware



# Principais Características do MP



Compatibilidade com: **x86, x86-64, ARM, ARM Thumb, Xtens**



Simple, rápido e robusto



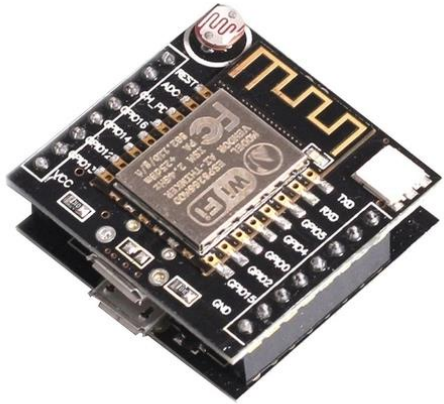
Suporte multithreading



Montador assembler embutido



Detecta as exceções: `MemoryError` e `RuntimeError`.



**ESP8622**



**ESP32**



**WIPY**

**OUTRAS PLACAS**



MicroPython

HOME

FORUM

DOCS

QUICK-REF

DOWNLOAD

STORE

CONTACT

```
MicroPython cd2f742 on 2017-11-29; unicorn with Cortex-M3
Type "help()" for more information.
>>> █
```

```
1 # Welcome to MicroPython on Unicorn!
2
3 # The terminal beside this is no ordinary REPL.
4 # It utilizes the Unicorn CPU emulator converted
5 # to Javascript by Unicorn.js in order to run MicroPython
6 # "bare metal" on an ARM CPU emulation.
7
8 # MicroPython on Unicorn is completely open source so
9 # make sure to report bugs to the issue tracker!.
10
11 # Source: https://github.com/micropython/micropython-unicorn
12
13 # The user and reset buttons along with the LEDs and pins
14 # on the pyboard below are fully functional. Unfortunately
15 # that's not quite the case for the clock speed approximation
16 # when delayed.
17
18 # Try to write a script, paste some code or run a demo!
19
```

BINARY : PYBOARD RAM : 64KB STACK : 8KB RESET

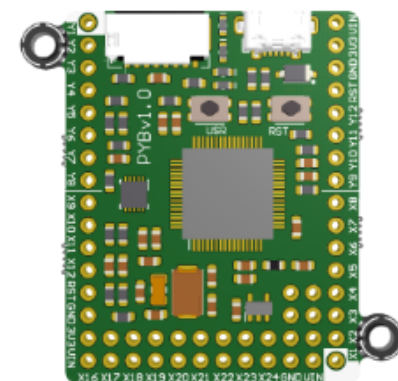
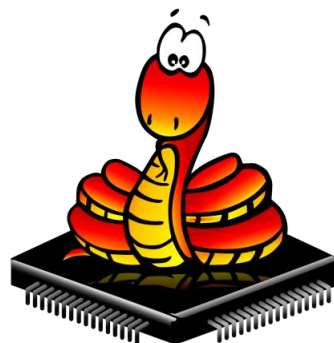
CLOCK SPEED 0.00 MHz

PERIPHERALS :

- ☐ LED ☐ I2C LCD
- ☐ SERVO
- ☐ ADC

RUN SCRIPT

CHOOSE A DEMO...





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# Dúvidas?

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**100%** ON-LINE 

