

# Otvorené vzdelávanie: príklady zo Slovenska a sveta

CC seminár :: Bratislava 2018-10-22



**OE: “Open education is a philosophy about the way people should produce, share, and build on knowledge.” (opensource.com)**

**OER (Open Educational Resources), OEP,...**

**Otvorené vzdelávanie = filozofia, pohľad na svet:**

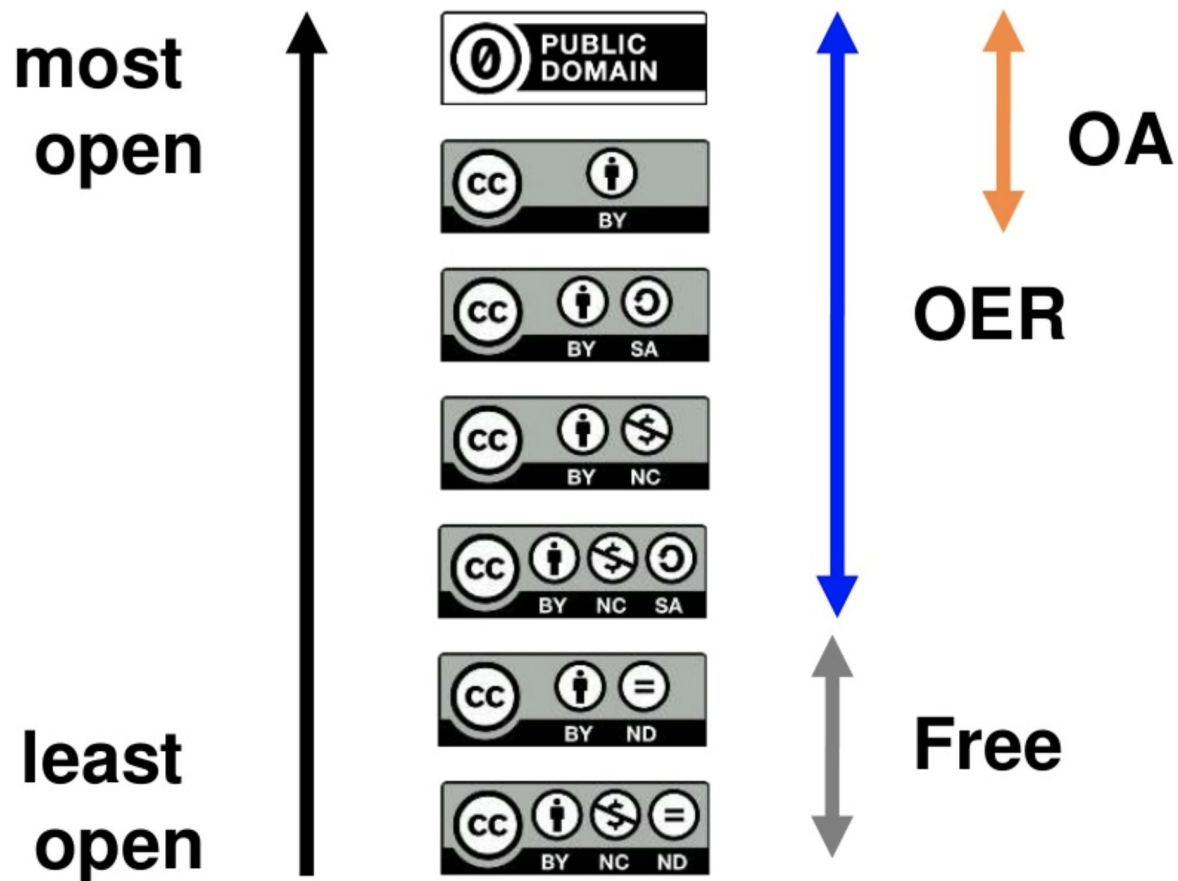
**OER: “Open source vzdelávacie materiály”  
Otvorené vzdelávacie praktiky,...**

**(Ďalej: otvorené dáta, FLOSS v školách,...)**

“The terms *open content* and *open educational resources* describe any copyrightable work (...) licensed in a manner that provides users with **free and perpetual permission** to engage in the 5R activities...

**Retain... Reuse... Revise... Remix... Redistribute”**

**<https://www.yearofopen.org/open-education-definitions/>**



Source: Nicole Allen, SPARC (CC-BY 4.0)

**SK preklad DjangoGirls**

**MicroPython.Sk + ucimeshardverom.sk**

**“Ponořme se do Pythonu”** (knihy.nic.cz)

**Operačné systémy GNU/Linux** (Martin Šechný)

**Preklady:** <https://github.com/bletvaska/pgzero-slovak>  
(Mirek Biñas: sobota + nedeľa #OSSvikend 2018)

**GitHub:** docs, src,... (nie iba knihy a videá)

**YouTube:** PyConSK (ale aj PyCon, DjangoCon,...)

**django** *girls*



# PYGAME ZERO

## GAME CODING MADE EASY

It's designed to make it easier for teachers and students to start making games with Python. **Sean McManus** speaks to its creator, **Daniel Pope**...

**I**f you've written a Python game, you've probably wrestled with Pygame. It's one of the go-to libraries for games programming, providing code for displaying images, drawing shapes, playing sounds, and writing text. The Python games in Raspbian also use it, but if you look at any Pygame code, you'll see that it can be a bit convoluted.

**Below Art Attack,** one of Daniel's PyWeek entries made with Pygame



### INSTALLING PYGAME ZERO

Pygame Zero will be included in a future Raspbian release, but for now you can install using the Python package manager, `pip`. From the Raspbian command line, enter these commands to install `pip` (if necessary) and Pygame Zero (which utilises Python 3):

```
sudo apt-get update
sudo apt-get install python3-setuptools python3-pip
sudo pip3.2 install pgzero
```

Read the docs at: [btlily/pgzero](http://btlily/pgzero)

At the 2012 UK Python Conference, PyCon UK, professional programmer Daniel Pope participated in the education track. "I dashed off the most simple Pygame program I could, a rabbit sliding across the screen – about 15 lines of Python," he tells us. "The teachers told me it was too complicated to teach – that in the context of a 30-minute lesson, just tasked with reproducing my code, some of the students would still be struggling with non-runnable code at the same time that others were done and waiting for the next challenge."

He's now released Pygame Zero as a solution to that problem. "The simplest programs are just a couple of lines. And Pygame Zero lets teachers easily break lessons into bite-size steps: it feels like you can keep changing a couple of lines at a time and keep making meaningful progress."

Outside the classroom, it'll also help hobbyist programmers to get results more quickly.

Daniel is a two-times winner and nine-times entrant in PyWeek ([pyweek.org](http://pyweek.org)), a week-long games programming competition. *Art Attack* from PyWeek 12 and *Legend of Goblit* from PyWeek 19 were made using Pygame. His other games were made with Pyglet ([pyglet.org](http://pyglet.org)), another library which had some influence on parts of Pygame Zero's design.

As an experienced Pygame coder, he could see the opportunity to improve upon it. "Pygame is a library that allows you to access input, load and draw graphics, play sounds – but you

have to decide how to make the library do those things and write a little bit of code to do it," he says. "Mostly, people make the same decisions, so that code ends up looking the same. Pygame Zero makes some of the decisions for you, so your program doesn't need to include that code."

Pygame Zero also adds a few features on top of Pygame. "Pygame is just a library for input, graphics, sound, and so on," Daniel says. "We have provided some extra ability to animate objects, draw text in a number of styles, and schedule in-game events – for example, to create a power-up every 60 seconds."

### The main event

This is one way that Pygame Zero enables more events-driven programming. Instead of having to loop endlessly to check for a mouse click, for example, you can write a function that is triggered when the mouse button is pressed. Pygame Zero does the checking for you in the background.

"Event-driven code is a very natural way to write programs that respond to input from the user, a hardware device, or a network," says Daniel. "Most Pygame programs use an event loop but require you to write it yourself, and call your own code when certain types of events occur. In Pygame Zero, we keep the event loop inside the framework so you don't have to write it, and it will call any handlers you define. It's really just a simpler way of working

with the same programming model, but it does feel different to work with, more organised."

The new library also simplifies image handling by introducing the concept of actors, which provide an easy way to load and manage picture files. These are ideal for game characters, because you can easily move them around by just changing their x and/or y position. There's support for positioning by one of the actor's corners too, so you can avoid the messy calculations that might otherwise be associated with that.

Pygame Zero can best help with 2D graphical games. "Retro games would be a very good fit," Daniel reckons, "but some more modern 2D smartphone games can be easily written too, like *Flappy Bird*."

For those who want to write more advanced games, Pygame Zero can be a useful stepping stone. "Pygame Zero is likely to be slow if you have a lot of things to draw," advises Daniel. "Lots of ways of



**Above Daniel Pope:** "We write games so that others can dip into our imaginations"  
**Left The Legend of Goblit,** Daniel's winning PyWeek entry last year, based on Pygame

Pygame Zero improves compatibility by enforcing some simple rules. It requires images to be stored in a folder called 'images' and sounds to be stored in a folder called 'sounds'. There are rules on valid filenames too, to avoid cross-platform compatibility issues.

As for next steps, Daniel says the short-term focus is on ensuring that

## Pygame Zero enables more events-driven programming – a more natural way to code

improving performance will require some control of Surfaces and when to draw or invalidate them. Support for that kind of thing is mostly in Pygame itself. Also, there are APIs in Pygame to rotate sprites, access webcams, joysticks, and so on. So there's lots in the Pygame toolbox that you can experiment with as you get more experienced."

### Sharing is caring

"The reason we write games is to share them," says Daniel. "We write games so that others can dip into our imaginations and have fun with our ideas. It's always very disappointing when you want to play someone else's game but it doesn't work, and sadly this is often the situation when sharing games written on a computer with different hardware and software."

Pygame Zero meets its educational goals. "If something seems confusing to use, or crashes with an error message that doesn't give good information about what went wrong, that's a bug – let us know," he says. "Longer term, I'm keen to explore better ways of sharing and distributing games; I'd love to see a website dedicated to sharing Pygame Zero games. But we could also try to make Pygame Zero games work even without Python pre-installed. And maybe we will make progress on the lack of hardware acceleration in Pygame. I've spoken to people in the Python community who have part of the solution to these problems. Pygame Zero, Pygame, and Python are all open-source projects and benefit from the collaboration of lots of people solving little parts of the problem."





Nájdite projekt :

Každá téma

Akýkoľvek hardvér

Akýkoľvek softvér

Všetky úrovne



### Rocková skupina

V tomto projekte sa naučíš ako naprogramovať hudobné nástroje!

Scratch



### Lovci duchov

Chystáš sa urobiť hru na chytenie duchov!

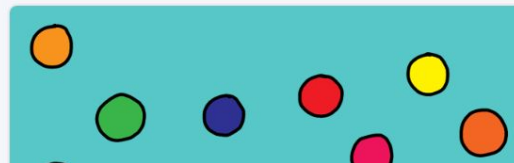
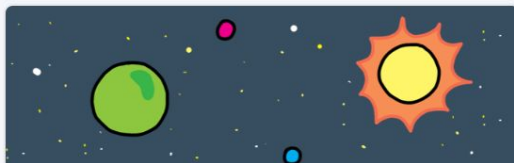
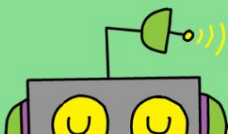
Scratch

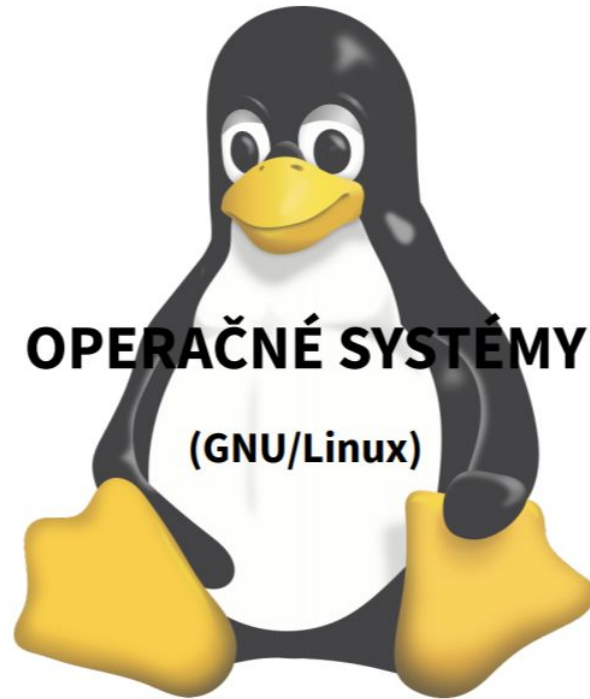


### Preteky lodí

V tomto projekte sa naučíš ako vytvoriť hru, v ktorej budeš používať myš na navigovať loďku na pustý ostrov.

Scratch





Martin Šechný

2018

verzia 4.13





YouTube

Search



SIGN IN



Home



Trending



History

## BEST OF YOUTUBE



Music



Sports



Gaming



Movies



News



Live



360° Video



Browse channels

Sign in now to see your channels and recommendations!

SIGN IN

## MORE FROM YOUTUBE



Live

HOME

VIDEOS

PLAYLISTS

CHANNELS

DISCUSSION

ABOUT



Uploads ▾

PLAY ALL

≡ SORT BY



Žiacke projekty na PyCon SK 2018

56 views • 3 months ago



PyCon SK 2018 - Sunday - Python Software Foundatio...

96 views • 3 months ago



PyCon SK 2018 - Sunday - Kiwi.com Hall

161 views • 3 months ago



PyCon SK 2018 - Saturday - Kiwi.com Hall

207 views • 3 months ago



PyCon SK 2018 - Saturday - Python Software Foundatio...

153 views • 3 months ago



PyCon SK 2018 - Friday - Kiwi.com Hall

246 views • 3 months ago



PyCon SK 2017 - Sunday - Large Auditorium

577 views • 3 months ago



PyCon SK 2017 - Sunday - Small Auditorium

306 views • 3 months ago



PyCon SK 2017 - Saturday - Large Auditorium

859 views • 3 months ago



PyCon SK 2017 - Saturday - Small Auditorium

483 views • 3 months ago



PyCon SK 2017 - Friday - Small Auditorium

408 views • 3 months ago



PyCon SK 2016 - Prihovor

7 views • 3 months ago



Rozhovory na PyCon SK 2016 - Petra Cross

46 views • 3 months ago



PyCon SK 2016 - Friday - speakers camera

14 views • 3 months ago



PyCon SK 2016 - Friday - Camera 2

74 views • 3 months ago



YouTube<sup>SK</sup>

python



SIGN IN

About 461,000 filtered results

FILTER

UPLOAD DATE

TYPE

DURATION

FEATURES

SORT BY

Last hour

Video

Short (< 4 minutes)

4K

**Relevance**

Today

Channel

Long (> 20 minutes)

HD

Upload date

This week

Playlist

HDR

View count

This month

Movie

Subtitles/CC

Rating

This year

Show

**Creative Commons** ×

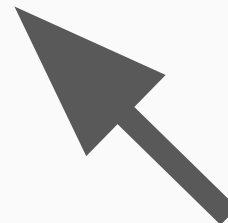
3D

Live

Purchased

360°

Location







# PyCon SK 2019

Hostiteľom štvrtého ročníka bude opäť Bratislava, 22.-24. Marec 2019.

- PyConSK 2019 opět' na FIIT
- **Dátum: 22.-24. marec 2019** (lístky v predaji, CfP)
- Education Track
- **Vytvorte nový vzdelávací zdroj, dostanete lístok :-)**





## Otvorené vzdelávacie zdroje

Otvorené vzdelávacie zdroje (Open Educational Resources, OER) by sme mohli definovať ako „*otvorené poskytovanie vzdelávacích zdrojov prostredníctvom informačných a komunikačných technológií za účelom konzultácií, používania a spracovania komunitou užívateľov na nekomerčné použitie.*“

Prvé globálne fórum organizované UNESCO v roku 2002.

### Čo sú otvorené vzdelávacie zdroje?

Definícií otvorených vzdelávacích zdrojov je však viac. Príkladom možno uviesť zopár definícií od organizácií, ktoré sa veľkou mierou pričinili na rozvoji otvorených vzdelávacích zdrojov a ich používaní v praxi.

**The William and Flora Hewlett Foundation** považuje za OER „*výučbové, študijné a výskumné zdroje, ktoré sú súčasťou public domain alebo sprístupnené pod licenciou umožňujúcou voľné použitie a spracovanie. OER zahŕňajú ucelené kurzy, materiály využívané počas kurzov, moduly, učebnice, streamované videá, testy, software a iné nástroje, materiály a techniky smerujúce k podpore prístupu k poznaniu.*“

**OECD** za OER považuje „*digitalizovaný materiál ponúkaný otvorene a slobodne pedagógom, študentom a samoštudentom na použitie a opakované použitie za účelom výučby, štúdií a výskumu.*“

**UNESCO** pod OER rozumie „*vzdelávacie, študijné alebo výskumné materiály, ktoré sú súčasťou public domain alebo sprístupnené pod licenciou umožňujúcou použitie, spracovanie a distribúciu.*“

Pravdepodobne najširšiu definíciu OER používa **Commonwealth of Learning**, v zmysle ktorej sa za OER považuje „*materiál ponúkaný slobodne a otvorene na použitie a spracovanie pre účely výučby, štúdií, vývoja a výskumu.*“

Spoločné **základné prvky** sa opakujú a sú nasledovné:

- Slobodná a otvorená forma dostupnosti materiálu.
- Možnosť (opakovaného) použitia a spracovania materiálu.

# www.otvorenevzdelavanie.sk

- **#PaywallTheMovie** (Príklad #OER)
- **Otvorené vzdelávacie praktiky** (peer production)
- **Každý (!) môže prispieť do komunity**

P@YWALL

The Business of Scholarship

## Why I learn programming?

- When I am programming, I create my own, new world, my game, and play it
- I can give access to my games to friends and they can play it as well
- I like it 😊



MY WORLD,  
MY VISION.

A photograph of a piece of white paper with the words "MY WORLD, MY VISION." written in colorful, hand-drawn capital letters. The letters are in various colors like blue, red, green, and yellow. The paper is slightly wrinkled and has a small red dot at the end of the second line.

# **#OAweek**

<https://www.openaccessweek.org>

# #opengovweek

OGP: môžeme pohovoriť v diskusii :-)

# Kontakt

**gondol@gondol.sk**

**<https://twitter.com/jangondol>**