

# Practical Odin for gamedevs

By Karl Zylinski – <https://zylinski.se>



- A programming language
- C-like
- High performance
- Low level
- Simple
- Comfortable, modern features: “low level with high level feeling”



Understanding the

ODIN

Programming Language

*Karl Zylinski*


Why did I get into Odin?

At



we programmed C. We enjoyed:

- Custom allocators
- Temporary allocators
- Tracking allocators
- Designated initializers
- Zero is initialized
- Cache friendly programming

I ran into  and saw that it featured:

- Custom allocators
- Temporary allocators
- Tracking allocators
- Designated initializers
- Zero is initialized
- Cache friendly programming

Let's go!

# Simple vector maths

Using array programming!



# Don't be scared of memory leaks

Track the leaks!

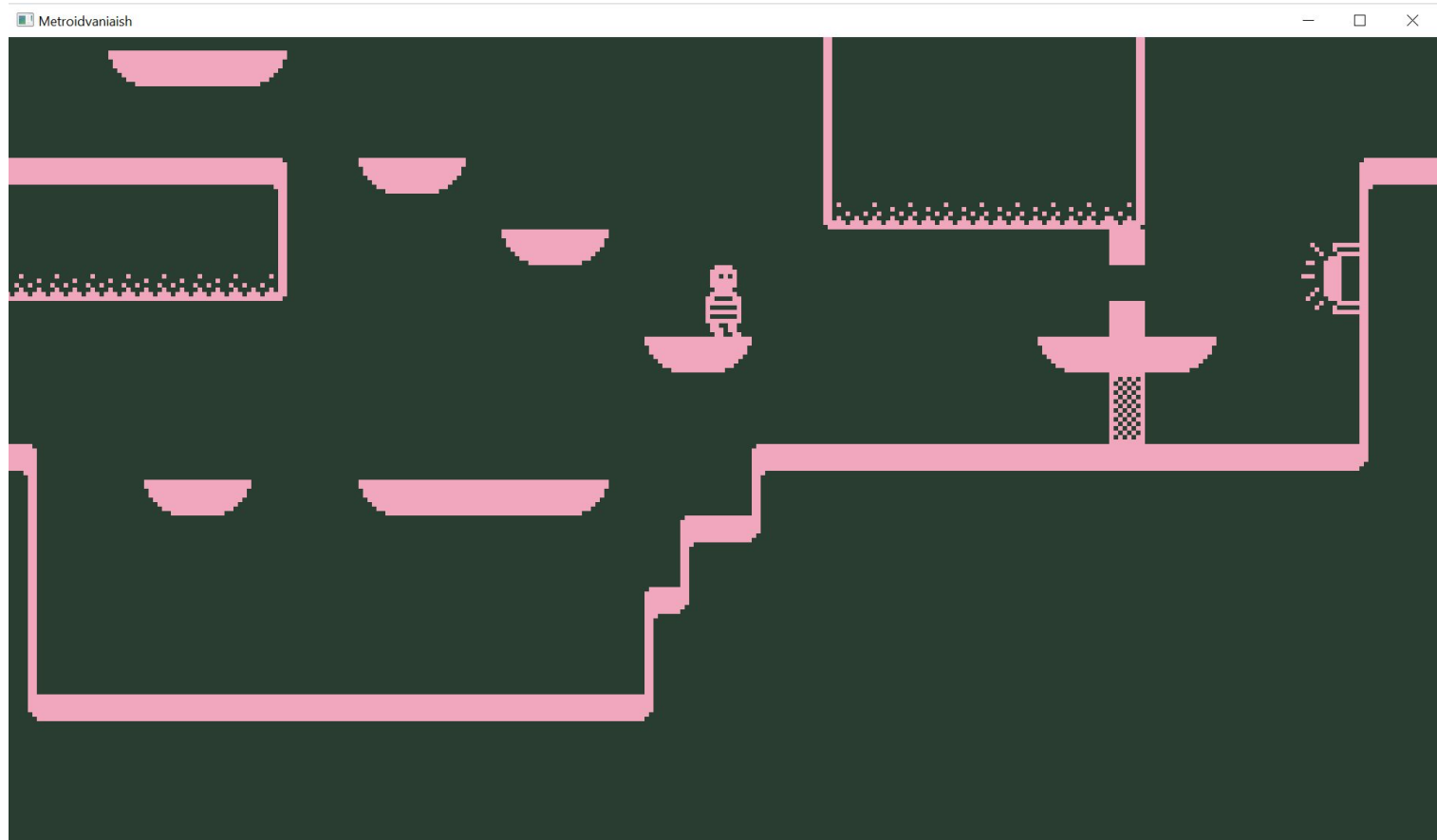
# Making use of the temporary allocator



# Enumerated arrays: Connect gameplay concepts



# State machines using tagged unions



# Entities: 4 approaches

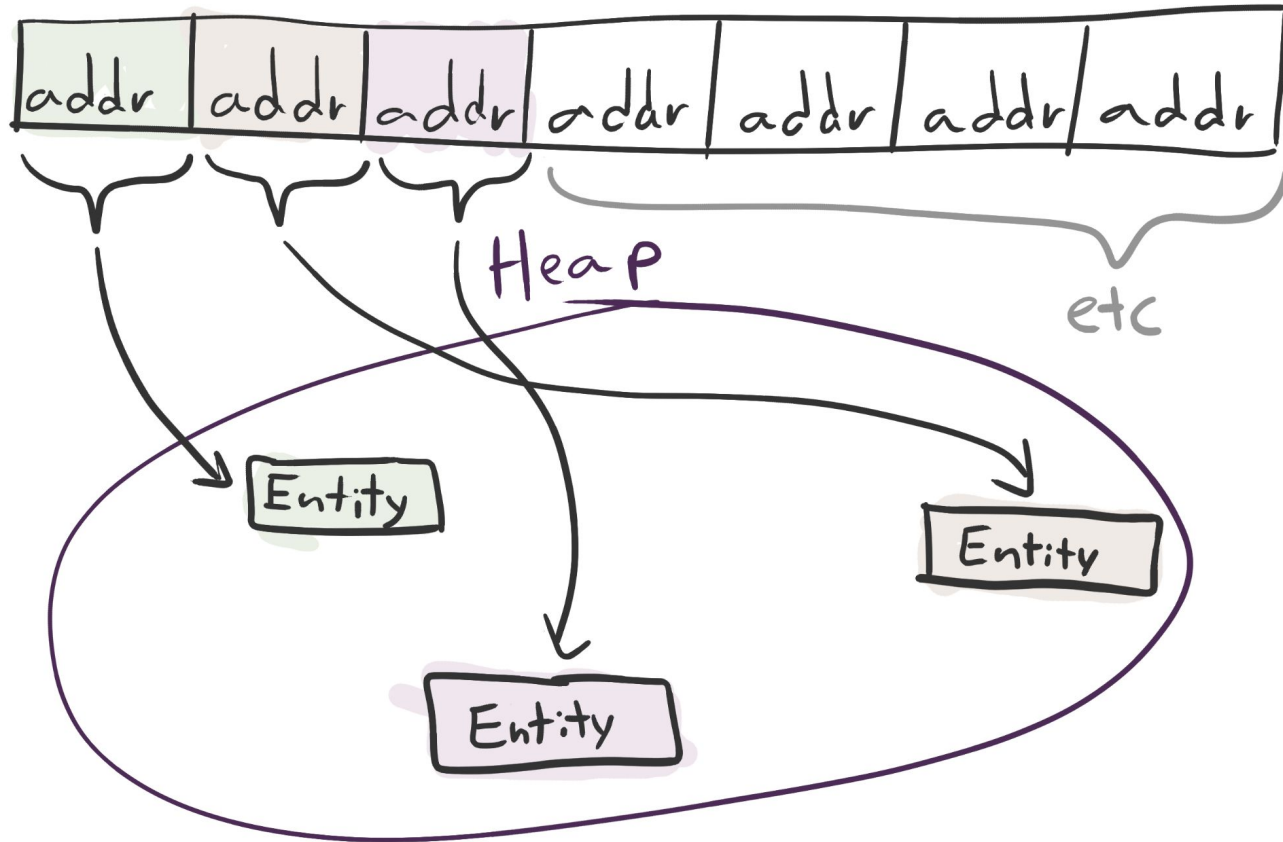
Let's look at some code..



# Don't separately allocate elements in big arrays

~~entities: [dynamic]^Entity~~

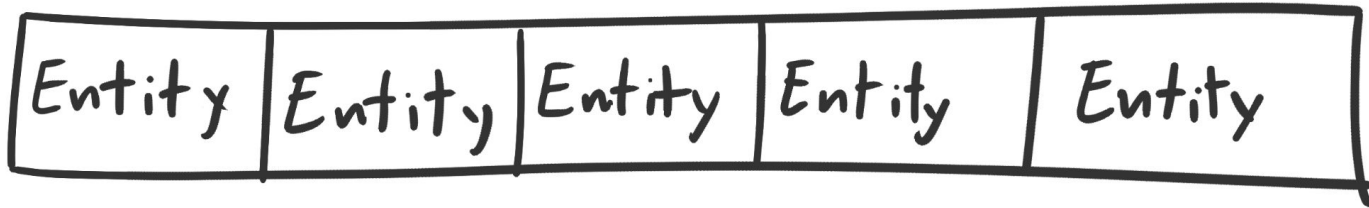
[dynamic]^Entity data





# entities: [dynamic]Entity

[dynamic]Entity      data



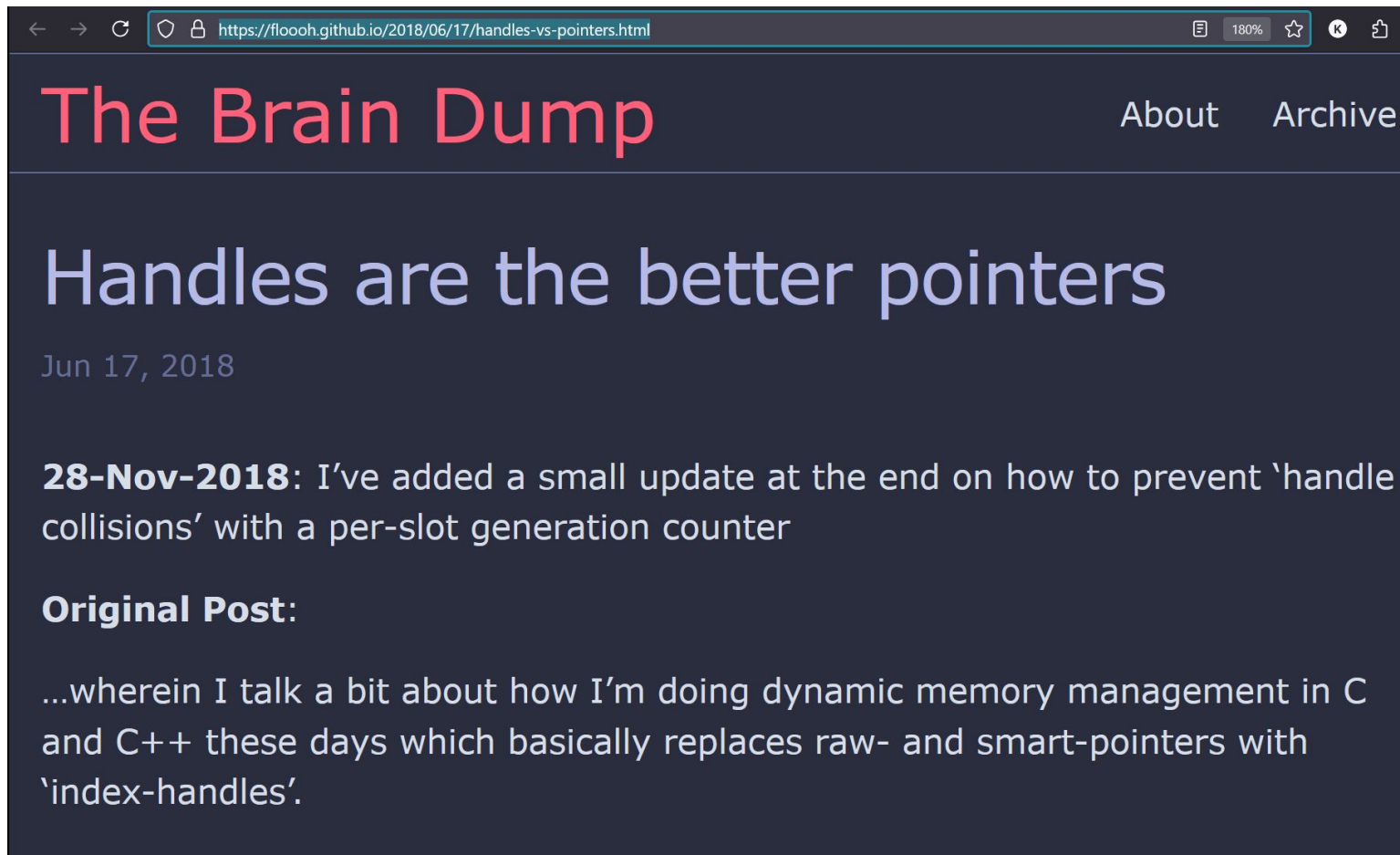
# Wait a minute...

```
1 entities: [dynamic]Entity
2 append(&entities, Entity { bla bla })
3 entity_ptr := &entities[0]
4
5 for i in 0..<1000 {
6     // This will make entities grow!
7     append(&entities, Entity { bla bla })
8 }
9
10 // May crash
11 fmt.println(entity_ptr.some_field)
```

Not a reason to separately allocate!

Instead: Use a handle-based map

<https://flooooh.github.io/2018/06/17/handles-vs-pointers.html>



The screenshot shows a web browser window with the address bar displaying the URL <https://flooooh.github.io/2018/06/17/handles-vs-pointers.html>. The page has a dark blue background. At the top, the site name "The Brain Dump" is written in a large, pink, sans-serif font. To its right, the words "About" and "Archive" are written in a smaller, white, sans-serif font. Below the site name, the title "Handles are the better pointers" is displayed in a large, white, sans-serif font. Under the title, the date "Jun 17, 2018" is written in a smaller, light blue, sans-serif font. Further down, a paragraph of text in white, sans-serif font reads: "**28-Nov-2018:** I've added a small update at the end on how to prevent 'handle collisions' with a per-slot generation counter". Below this, the heading "Original Post:" is written in a bold, white, sans-serif font. The final paragraph of text in white, sans-serif font reads: "...wherein I talk a bit about how I'm doing dynamic memory management in C and C++ these days which basically replaces raw- and smart-pointers with 'index-handles'".

← → ↻ 🔒 <https://flooooh.github.io/2018/06/17/handles-vs-pointers.html> 180% ☆ K 📄

# The Brain Dump

About Archive

## Handles are the better pointers

Jun 17, 2018

**28-Nov-2018:** I've added a small update at the end on how to prevent 'handle collisions' with a per-slot generation counter

**Original Post:**

...wherein I talk a bit about how I'm doing dynamic memory management in C and C++ these days which basically replaces raw- and smart-pointers with 'index-handles'.



<https://github.com/karl-zyllinski/odin-handle-map>

# Thank you!

Learn Odin using my eBook “Understanding the Odin Programming Language”:

<https://odinbook.com>

My website and blog:

<https://zylinski.se>

These slides:

<https://zylinski.se/fatshark.pdf>

# Don't use pointer parameters for the sake of optimization





# “Prefer to pass slices”

