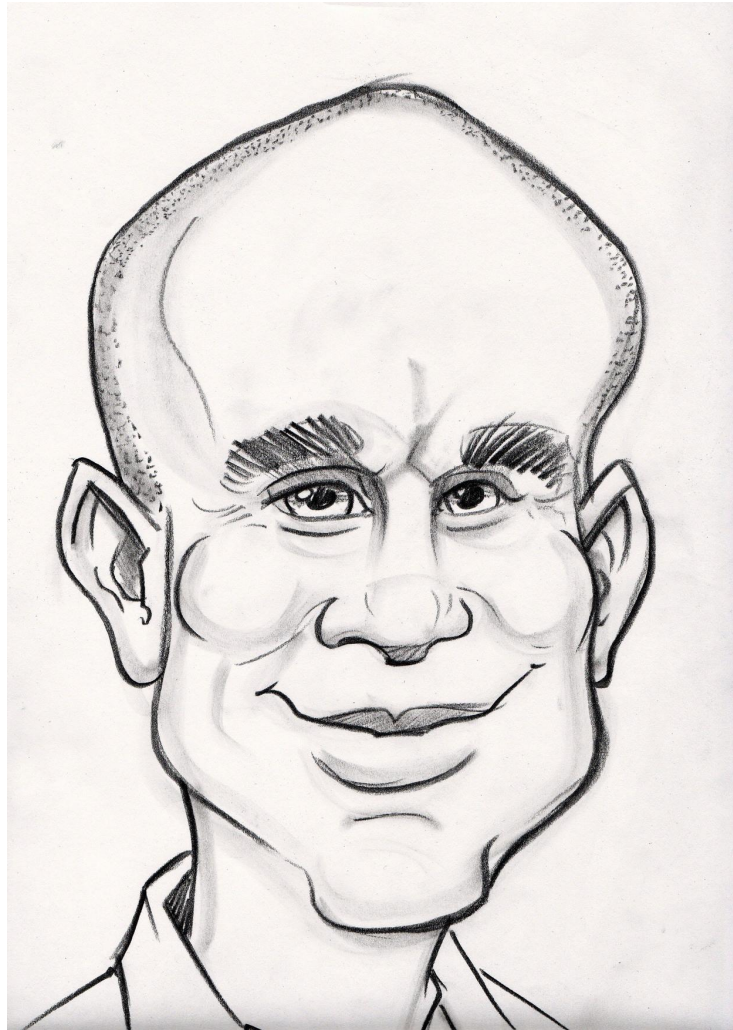


with θ Serialization and ε Memory

Miki
Tebeka



CEO, CTO, UFO ...
353solutions



How many times do I
have to tell you?
The right tool for the
right job!

Lt. Commander Montgomery Scott

RPC

Glue Language

Duct tape is like the force. It has a light side, and a dark side, and it holds the universe together.

— Carl Zwanzig

<https://numpy.org/doc/stable/user/c-info.python-as-glue.html>

CPython

Preconditions

- Go's `float64` & numpy's `float64` have the same representation in memory
- numpy arrays are contiguous in memory, same as Go's slices

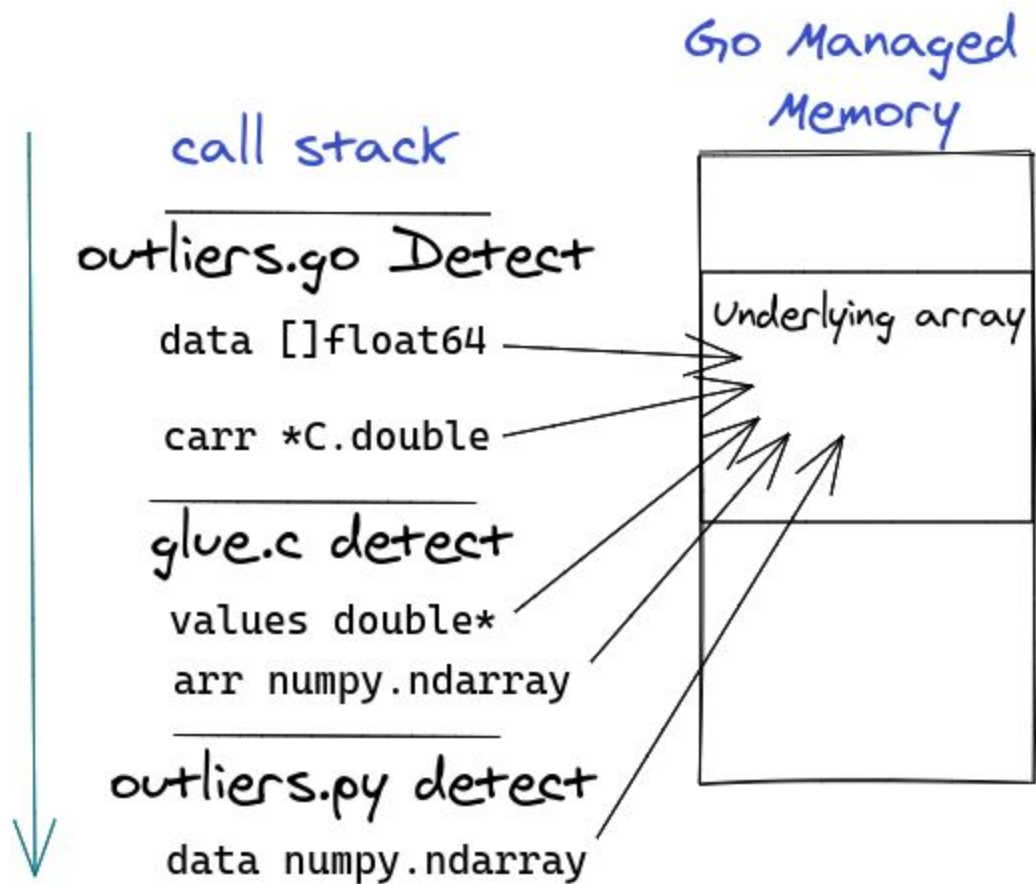


Setup

- Initialize Python
- Initialize numpy
- Load Module
- Get pointer to function



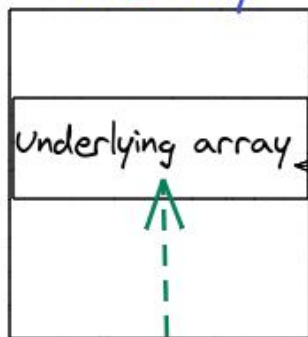
*Going
Down*





Up
Going

Go Managed
Memory



call stack
outliers.go Detect

s []float64

arr *C.long

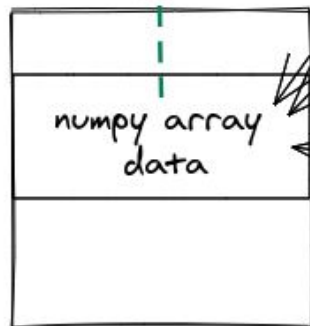
glue.c detect

res.indices numpy.ndarray

outliers.py detect

return value numpy.ndarray

copy



Python Managed
Memory



*Building
&
Running*

What's Left?

- Goroutine/thread safety (GIL)
- Better error recovery
- Memory leaks?
- ...

Thank You!

<https://www.ardanlabs.com/blog/2020/09/using-python-memory.html>

<https://poweruser.blog/embedding-python-in-go-338c0399f3d5>

#darkarts on <https://gophers.slack.com/>

<https://github.com/tebeka/talks/tree/master/embed-py-fosdem>



GO BRAIN TEASERS

EXERCISE YOUR MIND

```
1 package main
2
3 import (
4     "fmt"
5 )
6
7 func main() {
8     var π = 22 / 7.0
9     fmt.Println(π)
10 }
```

WILL THIS CODE COMPILE? WHAT WILL IT PRINT?

25 MIND BENDING TEASERS & SOLUTIONS

MIKI TEBEKA