

# C++ Club UK Meeting 119

Gleb Dolgich

2021-01-14

# Reverse Engineering the source code of the BioNTech/Pfizer SARS-CoV-2 Vaccine

Not strictly C++ related, but fascinating nevertheless, and also topical.

- [Article](#)
  - [Reddit](#)

# Why Another C++ (And More™) Conference?

- [JeanHeyd Meneide](#) ([Reddit](#))

## CoSy - Computing Systems Technology Conference

- [Website](#)

CoSy (pronounced like “cozy”) is a Systems Programming Conference:

- Broad scope (C++, C, Rust, Zig, FORTH, Nim, OCaml etc.)
- Double-blind submission reviews

*Of course, it's not always possible to double-blind everything! If someone writes a submission about how they wrote a Great Book On Large Scale Software Architecture That's Really Good And Helps You Modularize And Structure Large Software And The Sequel Is Out You Should Buy It Now, they have vastly reduced the pool of people they could be talking about.*

- Escaping the Crushing Despair (case in point: CppLang Slack)
  - [The... Community? on YouTube](#)

# A Small Open Source Game In C++

- Preshing
  - Reddit
  - GitHub
  - Code review

That tongue animation :-)

# Graphics Library for simple 2D games

- [Reddit](#)
  - [SFML](#)
  - [Allegro](#)
  - [SDL - C](#)
  - [olcPixelGameEngine](#)

is::Engine - C++ SFML game engine

- [Reddit announcement](#)

# Interactive C++ with Cling

- LLVM Blog

# Calendar and Time-Zones in C++20: Time of Day

Rainer Grimm

# FTL - A functional template library for containers processing in C++

- [GitHub](#)
  - [Reddit](#)

FTL is a C++17-based library that provides a more convenient API for collections processing. The API is heavily inspired by the Rust programming language.

```
1 const auto totalVolume = cityTrees.iter()
2   .filter([](const auto &tree) { return tree.kind ==
3     Tree::Oak && tree.diameter > 25; })
4   .map([](const auto &tree) { return tree.volume(); })
5   .sum();
```



# Compiling C/C++ on Apple M1

- Boris Kolpackov
  - [Reddit](#)

# Linux developer going Windows

- Reddit

# BinOpt — A Library for Self-guided Runtime Binary Optimization

- [GitHub](#) (LGPLv2.1+)

## Best framework to create HTTP server

- Reddit

# Boost 1.75

- Release notes
  - Reddit

# C++ Russia 2020 Moscow

- [Playlist on YouTube](#)

# mocxx: a versatile C++ function mocking framework based on Frida, by Guardsquare

No macros! Doesn't support mocking virtual functions yet.

- [Reddit](#)
  - [GitHub](#) (C++17, GPL-3.0)
    - [Frida - Dynamic instrumentation toolkit for developers, reverse-engineers, and security researchers](#)
  - [Explanatory blog post at Guardsquare](#)

# Compile 1 Million Lines Of C++ In ~2 Minutes With A 16 Core Ryzen 9 5950x

- Embarcadero
  - Reddit

*I love how a shitty, bug-ridden development environment that costs US\$1359 for the most basic edition still requires you to buy a separate US\$139 extension to enable parallel builds, a standard feature available on practically every other closed and open source compiler and build system out of the box for \$0 extra.*

## Dev-C++

A fast, portable, simple, and free C/C++ IDE for Windows, built in Delphi

- GitHub



## Using `std::list::splice` to implement a LRU cache

- [Article on nextptr](#)
- `std::list::splice`

# What should the state of a moved-from object be?

- Raymond Chen
  - Reddit

# Reducing Memory Consumption in Visual Assist

- Blog post
  - Reddit

dont\_deduce<T>

- artificial::mind
  - Reddit

## C++11

```
1 template <class T> struct foo_t { using type = T; };  
2 template <class T> using foo = typename foo_t<T>::type;
```

## C++20

```
1 template <typename T>  
2 auto operator+(  
3     vec3<T> const& a,  
4     std::convertible_to<T> auto const& b  
5 ) -> vec3<T>;
```

## Writing a custom iterator in modern C++ (C++17)

- Article
  - Reddit

# C++ for Swift developers

- Sidharth Juyal
  - [Reddit](#)

## Wrapping C++ for use in Swift

- [Reddit](#)

# Is Zero a Butterfly?

- Shafik Yaghmour
  - Reddit

## `std::optional` and other useful types

- `Reddit`



If you were allowed to make breaking changes to the C++ specification, what features would you modify/replace/remove to make the language better?

- Reddit

## EnTT 3.6.0

Gaming meets modern C++ - a fast and reliable entity component system (ECS) and much more.

- [Announcement on Reddit](#)
  - [GitHub](#) (C++17, MIT)

With `std::variant`, you choose either performance or sanity

- Reddit

# MSVC build performance

- Improving code generation time with C++ Build Insights
- Faster C++ builds, simplified: a new metric for time
- The Coalition Sees 27.9X Iteration Build Improvement with Visual Studio 2019
- Faster C++ Iteration Builds
  - Reddit
- C++ Build Analyzer
  - C++ Build Insights SDK

# Infix Function Calls with Boost HOF

- Jo Boccara
  - Reddit

Before

```
1 | const bool b = isPrefixOf(prefix, text);
```

After

```
1 | const bool b = prefix <isPrefixOf> text;
```

# Polymorphism Decision Table

- Kilian Henneberger

# Tracy Profiler

A real time, nanosecond resolution, remote telemetry, hybrid frame and sampling profiler for games and other applications.

Tracy supports profiling CPU (C, C++11, Lua), GPU (OpenGL, Vulkan, OpenCL, Direct3D 12), memory, locks, context switches, per-frame screenshots and more.

- [GitHub](#)

# Latest C++: theory vs. reality

- Reddit
  - Godot game engine C++ standard thread on GitHub



# Perhaps it's time for a more opinionated dialect of C++

- [Reddit](#)
- Should I litter my code with (the correct) attributes for every function, or just leave it pretty?

## A morning kick



**I Am Developer**

@iamdeveloper



How I Hacked My Morning Routine:

I wiped a production database and  
now I am 100% definitely awake

8/29/18, 10:27 AM

---

**2,567** Retweets **9,467** Likes