C++ Club UK Meeting 125

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Visual Studio 2019 update

- Address Sanitizer for MSVC
  - Reddit
- IntelliSense Improvements
  - Reddit

How does Modern C++ (C++20) compare with Rust?

- Reddit

> *Even if you don't use Rust learn it. It will make you a better C++ programmer.* #

LIEF: Library to Instrument Executable Formats

This project aims to provide a cross platform library to parse, modify and abstract ELF, PE and MachO formats.

- Website
- Docs
- GitHub (Apache 2 Licence)
- Profiling C++ code with Frida
  - Frida website
  - Frida on GitHub
  - Frida Profiler

Enforcing Signatures On Templated Callbacks

- Philippe M. Groarke
  - Reddit

Improving Print Logging with Line Pos Info & Modern C++

- B. Filipek
  - Reddit

The perils of the accidental C++ conversion constructor

- Raymond Chen
  - Reddit

> *No one hates C++ more than the people who love C++.* #

Making Win32 APIs More Accessible to More Languages

- Microsoft
  - C++/WinRT
  - cppwin32

C++ and game engines

- Reddit

> *Hey, I started out with C++ 3 months ago and really love it. I already have some experience in Unity, but I'd like to use C++. Is there any engine you would recommend me to try out? I know about Unreal Engine but I can't find any good tutorials for how to use C++ with Unreal Engine. Is there any other option or a tutorial series or anything you could recommend me?*

Game developers, what compiler optimization setting do you use?

- 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)

Better CMake

- Videos by Jefferson Amstutz

Solving differential equations with LLVM

Heyoka is a C++ library for the integration of ordinary differential equations (ODEs) via Taylor's method. Notable features include:

- support for both double-precision and extended-precision floating-point types (80-bit and 28-bit),
- the ability to maintain machine precision accuracy over tens of billions of timesteps, batch mode integration to harness the power of modern SIMD instruction sets,
- a high-performance implementation of Taylor's method based on automatic differentiation techniques and aggressive just-in-time compilation via LLVM.

Links

- GitHub (C++17, MPL-2.0)
  - Docs
  - Reddit

TTauri: modern retained-mode GUI library in C++20

- GitHub
  - Reddit

C++20 Coroutines: sketching a minimal async framework

- Jeremy Ong
  - Reddit

C++ Performance Trap #1: Constant-size std::vector

- Scott Wolchok
  - Reddit
  - Software optimization resources, by Agner

C++ Performance Trap #2: Unnecessary std::function

- Scott Wolchok
  - Reddit

Inlining and Compiler Optimizations

- Scott Wolchok
  - Reddit

Library: Cli

A cross-platform header only C++14 library for interactive command line interfaces (Cisco style).

- GitHub

Introduction to Lua in C++ with Sol2

- Hristo Stamenov

Book erratum: Professional C++ by Marc Gregoire

- Reddit

> *Statements of the form return object; trigger return value optimization (RVO) if object is a local variable, a parameter to the function, or a temporary value. Furthermore, if object is a local variable, named return value optimization (NRVO) can kick in.*

- cppreference: Copy elision

Free Windows 10 development virtual machines for HyperV, Parallels, VirtualBox, and VMWare

- Scott Hanselman
- Virtual machine downloads at Microsoft
- Free developer tools for Windows 10

New project flowchart