# MITIGATING THE INTELLECTUAL ANXIETY IN LEARNING C++

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# About US

- Dennis is a young and growing compiler developer. He is also a front-end web developer and a technical writer. He loves writing C++.
- @Dennis____O on twitter and Dennis Onyeka on linkedIn

- Emmanuel is a recent computer science graduate from Kwame Nkrumah University of Science and Technology. Has worked on C++ interoperability with the D language and currently working on NetBSD operating system as a contributor

@nyarrkko on twitter

# What it is to tell the African majority that you're learning C++

- What you say
- "Hey, I'm learning C++ programming, I want to work on big things in the world."

- What you are told.
- "Hey, what are you going to do with that?? Can it build a website?? Can it build a mobile app."

# A Brief of the African programming culture that does not favor C++ developments

- Programming is web/mobile app
- Once a responsive User level interface isn’t seen, mostly not a major consideration.
- minimal consideration for the CLI
- Want to be users and not contributors
- 80 to 90 percent of software firms are all doing web designs

# The turning point

- There definitely are people learning C++
- Almost everyone has a touch of C++
- Most Universities and code training programs teach C/C++ as the first language to learn.

- But there is a turning point where they never want to return to C++.

- **POINTERS**

# C++ perceived as a difficult programming language

- Is this a myth?
- Or is this reality?

- I believe it’s both a myth and a reality

- It no longer becomes a myth after you get through pointers and you emerge victorious.

# How I had my way with pointers

- I Read Fundamentals of C++ programming book by Richard L. Halterman from Southern Adventist University three times until I came to a very deceptive satisfying level of understanding with pointers
- I made sure I crashed my windows computer multiple times.

- Until one afternoon at a hotel in my community, when I was supposed to help lodge a visitor, I had the eureka moment.

# Why not see a pointer this way?

- A real pointer (a long bar) our kindergarten teachers used to help us identify symbols and characters on boards.
- But now these pointers are pointing to hotel rooms with the hotel room numbers printed on these bars.
- And when you want to go to your room, you'll see this pointer(bar) Pointing directly at your door.
- When you want to see who is in that room, push the door gently with your bar.
- When a bar isn't pointing to a room yet, or the room is void of any human, the room is locked and you cannot open that room with the bar.

# What next ?

- Came up with what I call The environmental cross-disciplinary learning

- Which is a pragmatic approach to learning where one can give relatable meanings to concepts in a particular discipline drawn from their interaction with their physical and social environment.

# application of the cross-disciplinary environmental learning to OOP

- Classes are real classes.
- Yes, the classes we take in our schools
- Students in a particular class share common requirements
- These common things vary for every class you join which is decided by the instructor
- If you want to see what is expressed in a class, call out one of the students of the class.
- In all the common requirements, every student expresses them differently.

# There’s more

- A lot of semantics are also more very expressible in these scenarios.
- Value, reference, copy, move etc. can very well be expressed.

- Is C++ hard now??

# Unpopular conclusions drawn

- “For the sake of progression, if you do not understand anything, be relentless in attempting to”

# Beyond the learning strategies

- How do you keep going as a C++ programmer in an environment where there are no
  - Billion-dollar hedge funds using C++
  - Automative industries writing C++
  - Operating systems developments writing C++
  - Graphics software industries using C++
  - Chip makers writing C++
- And Isolated from the central developments and communications in C++ and travel very long distances to meaningfully share thoughts and contributions like joining a conference etc.

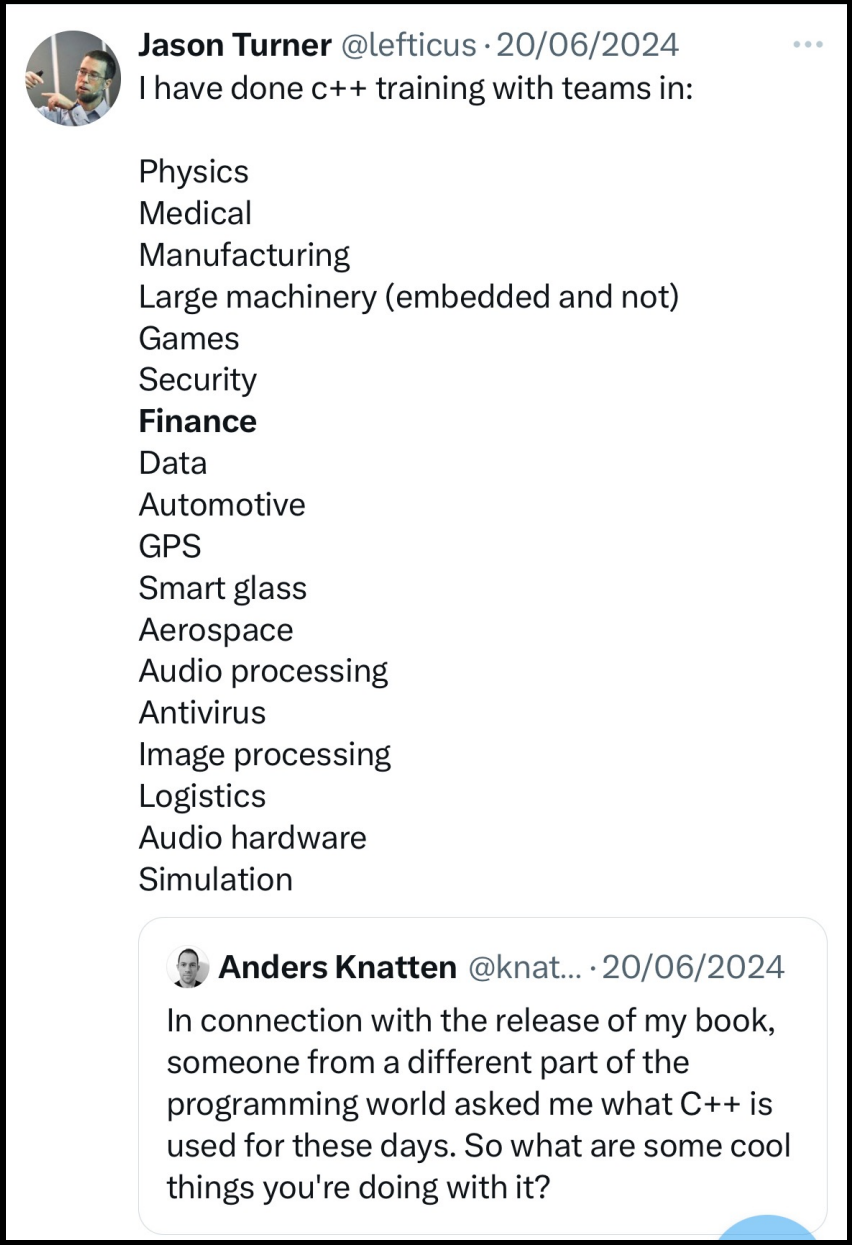
# Seek Purpose and fulfilment

- As a C++ programmer, you should be purpose driven, and write code for something bigger
- You automatically have a bigger task when you decide to write C++
- Because the fields of possible influence are large and numerous

# Spark your Intellectual curiosity

- A desire to learn more about the world and find answers to deeper questions.
- Not accepting everything for what they are.
- But rather finding the why and how to every single bit of instruction, concept, command etc. that comes along your learning path

# A random @lefticus tweet



**Jason Turner** @lefticus · 20/06/2024

I have done c++ training with teams in:

Physics
Medical
Manufacturing
Large machinery (embedded and not)
Games
Security
**Finance**
Data
Automotive
GPS
Smart glass
Aerospace
Audio processing
Antivirus
Image processing
Logistics
Audio hardware
Simulation

> **Anders Knatten** @knat... · 20/06/2024
>
> In connection with the release of my book, someone from a different part of the programming world asked me what C++ is used for these days. So what are some cool things you're doing with it?

# Finding fulfilment in your purpose

- Be an active contributor to open- source projects
- Most of the open-source projects are tools we use in our everyday activities
- Mostly presents you with the whys of instructions you always come across.
- If you want to learn how well to use a device, contribute to improvement

- The secret to full fulfilment is contribution

~Tony Robbins

# Are we going to get people involved?

- Change is never a matter of ability, but rather a matter of motivation and drive.

# Defying the odds

- “Nothing is to be feared, only to be understood. Now is the time to understand more so that we may fear less.”

~Marie Curie

# The End