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Deepgram

Dear Hiring Manager:
I am writing in response to the job posting of Senior Backend Software Engineer (Remote). After perusing the job description, particularly that of its emphasis on C, C++, Python, and development on UNIX-like systems, I am confident that my skills and experiences would make for a good match.

I am very passionate (and very focussed) about solving technical problems and have been in the industry for about 18 years. My software design experience has ranged across various industries, from APCO Public Safety base stations and two-way radios, energy storage controllers, switching equipment, to SIP VoIP phones and exercise equipment business logic. In all these myriad designs, my emphasis has always been on 'very-quick' performance, security and seemless scalability.

The past year, in between encapsulating functionality such as USB, I2C, SPI, UART, **ZeroMQ**, **MQTT**, **WebSockets** for personal **C++17** projects on my Ubuntu 16.04 environment, I have also been coding various projects for my STM32 NUCLEO F767ZI dev board (**also C++17 but without exceptions and dynamic memory allocations**). My github page is, https://github.com/nuertey Note though that I have not posted that much of my personal projects on there (besides an embedded C++ library, https://github.com/nuertey/jwt-cpp-mbed) as I have been more busy debugging other folks' projects on there and implementing a myriad of my own on local git repositories. Here is a summary of a few personal C++11 and C++17 projects on my local git repos :

[1] *Designed an Ubuntu Linux C++ application that implements a **volume-weighted average price (VWAP) trading algorithm** via a self-designed very fast type-driven trading message protocol. Messages were **serialized** and **deserialized** via self-designed **C++ template mechanisms** whilst sidestepping **network to host byte order issues**. Also, trades and quotes received, and the subsequently generated customer stock orders were written on-the-fly to a **PostgreSQL database** from within the C++ application. Two versions of the software were written, one utilizing C++17 and the Boost ASIO library for networking, and the other utilizing C++11 with my own self-designed encapsulations and abstractions for the networking segment.*

[2] *Demonstrated asynchronous ZeroMQ TCP socket communications integrated with boost.asio io_context/worker thread between a server and client pair. Also, the complex continuous data exchanged between the client and server applications was transmitted with **protobuf** and **capn proto** serialization (I used **Nanopb** for an equivalent application on the embedded platform).*

[3] *Designed and coded a **C++ IOT project** which involved capturing the outputs of my*

*cellphone's **accelerometer** and **gyroscope** sensors in realtime, and continuously plotting that device's position and inclination (**sensor fusion algorithm**) as it is being moved around. The capture application I wrote in **elegant C++17** with its protocol component in self-designed asynchronous **MQTT** (no reliance on external libraries such as Mosquitto, RabbitMQ or Paho MQTT) and its GUI plotting component in **OpenGL**. With the sensors being sampled in the **lower milliseconds range** and the code so optimized that elegantly, moving the phone updates its plot in **true realtime** with no discernable delays.*

[4] Designed and coded a C++ encapsulation and abstraction of USB devices that enables userspace programs talk directly to attached USB gadgets without having to go through kernel USB device drivers. I used this abstraction to enumerate and display information for all the USB devices attached to my system and to communicate with my Verizon MiFi device.

Currently at home, I am writing Python scripts to query and visualize data of the moment such as world-wide COVID-19 statistics distribution and, market data time-series trends for certain raw materials, and learning parallel programming as it applies to CUDA, OpenCL and Boost.Compute. Personal coding projects are available on request.

Sincerely,
Nuertey Odzeyem