N.B.: In case of discrepancy, the Chinese version shall prevail.

SÍQÍ WAN
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Career Objective

I've started my career as a C++ developer.

List of Expertise

- Proficient in C++;
- Beginner level in Java, Python, and C# ;
- Rich knowledge about C++ optimization strategies, e.g., cache line, memory model. Capable of improving the performance of OpenCV at different aspects;
- Real-world experience in machine learning workflow, limited knowledge of deep learning;
- Elementary knowledge of MySQL and SQLite;
- Elementary knowledge of BACnet MS/TP protocol;
- Basic understanding of assembly language and Godbolt
- Experience in Matlab scripts;
- I've been using LaTeX to typeset docs, e.g., curriculum vitae. Feeling comfortable using the PlantUML;

Project Experiences

The visual tracking of the rocket sled

During the outbreak of COVID-19, a huge amount of work has been done to help a friend of mine. I investigated various optimization techniques and many resulted in real-world performance improvement. The project requires the program to be able to track an object with high velocity, hence it is vital for the program to be of high performance. To improve the performance of the OpenCV, I optimized the OpenCV at several aspects: memory model, compiler flags, parallel computing, and enhanced instruction set. The program was implemented in C++ 17 and the compiler was MSVC.

- Implemented a pool allocator, resulting in a decrease of the execution time of KCF by 14 % ;
- Implemented the ECR algorithm according to the literature, and the algorithm is robust against illumination changes;
- Accelerated the ECR using Intel HD devices and the OpenCL, a decrease of the execution time of ECR by 30 % was observed;
- Customized the compile flag and the linker flag, resulting in a decrease of execution time (ECR and KCF) by 2 % ;
- Used the Intel IPP (enhanced instruction set) to speed up OpenCV, resulted in a decrease of execution time by 16 % (ECR) and by 2 % (KCF);

Design and developed a software that performs recognition of legend and text on engineering blueprint

At SÍEMENS, I worked in a team that was responsible for the graphical alarm system for the Chinese market. The market required that the legend and text recognized by software (conventionally by a human). The computer is always faster than human, thus there was no performance

requirement. Implemented software with the following functionalities:
• A functionality that gets the location of legends;
• Implemented an OCR that read the text adjacent to the legend;
• Implemented an MFC utility that converts a vector image to a non-vector image.

Implemented a data communication protocol according to the docs
At SÍEMENS, I was in a team that was responsible for the Cerberus fire control panels for the European market. I worked on the protocol intended for the communication between the fire protection system and its peripheral devices. The protocol is based on a streamlined architecture of the OSI model, i.e., the physical layer (RS485), the link layer (standard BACnet MS/TP LPDU), and the application layer (proprietary). The C++ version was C++11 and the compiler was GCC. The CMakeLists was used to aid compilation. Mapped the folder in guest OS (Linux) to host OS (Windows) using Samba. Moreover, I used the VS Code as the text editor.

Data mining of Twitter data, a machine learning approach
My graduation project was sophisticated and a huge collection of technologies in data mining. The aim was to draw insights from Twitter data.
• Topic modeling - an unsupervised approach. Technologies: Gensim, Python;
• Text classification - a supervised approach. Technologies: Weka, Java;
• Data storage, Oracle MySQL, C# ;
• Sentiment analysis, TextBlob, NLTK;
• Data visualization using Matlab.

Educational Qualifications

MSc Advanced Computer Science
Sep 2017 - October 2018
University of Leicester (ranks 150-200 globally)
Achievement: pass with distinction

Pre-Master's in Computing
September 2016 - May 2017
Nottingham Trent International College
Achievement: pass with distinction

Undergraduate
September 2010 - July 2014
Taiyuan University of Technology
The Taiyuan University of Technology is a "Project 211ïn China.

Languages

• Mandarin: mother tongue;
• English: IELTS band 6.5 with listening 7.0, reading 7.0, speaking 5.5 and writing 5.5.

Industrial Experience

A subsidiary of SÍEMENS

December 2018 - May 2019
As a C++ developer, I was responsible for designing and implementing software for SÍEMENS fire alarm systems.

Hobbies

• I've been intrigued by the CppCon, of which most Chinese developers are indeed oblivious;
• I solved a Rubik's Cube in 45 seconds on the stage with 700 audiences during the 2019 annual meeting, thus I've become famous around the company;
• Reading.

Training

Course: SAFe for Teams
Institution: Scaled Agile
SAFe for Teams is an implementation of the agile methodology (Scrum, DevOps, and Kanban).

For the PDF version, proceed to my GitHub: