万思琦
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求职意向

C++ 软件工程师，行业不限，但排除以服务为产品的公司。

技术能力

- 熟练 **C++**；
- 了解 Python、Java、C# ；
- 了解 C++ **性能优化**策略，了解谷歌 Benchmark。能够从多个层面对 OpenCV 进行优化；
- 熟悉机器学习流程，独立做过机器学习项目，从标注到数据清洗到训练再到验证；了解深度学习；
- **雅思证书** 6.5 分。对于计算机著作，会坚持阅读英文原版而非译文。会习惯性地访问英文技术网站，以 Stack Overflow 为主，以 CSDN 为辅；
- 具备 MySQL、SQLite 开发经验；
- 了解汇编语言、调用约定、Godbolt；
- 了解 BACnet MS/TP 协议标准；
- 具备 Matlab 脚本编程经验；
- 熟悉 LaTeX 编写中、英文档。熟悉 PlantUML 建模。

项目经验

火箭撬追踪项目

在 COVID-19 期间，帮朋友做项目。项目需要对火箭撬进行追踪，因此对性能要求高。为提升性能，从内存层面、编译指令层面、并行计算层面、指令集层面，对 OpenCV 作优化。语言 C++17，编译器 MSVC。用控制变量法，得到单一优化策略对性能的提升效果。

- 实现池分配器，重新编写 core 模块，使得 KCF 滤波跟踪算法耗时降低 14% ；
- 根据文献独立实现 ECR（边缘变化率）算法，用于初始时刻检测物体进入视野，该算法对光照变化具有强健性；
- 使用 Intel HD 和 Intel OpenCL SDK 对 ECR 算法进行优化，使得 ECR 算法耗时降低 30% [1]（GeForce GTX 1050 和 Intel HD Graphics 630。实验得出，后者的加速效果更好）；
- 优化 OpenCV 编译指令、链接指令，使得 ECR 算法耗时降低 2% ，KCF 算法耗时降低 2% ；
- 利用 IPP（SSE、AVX 指令集），使得 ECR 算法耗时降低 16% ，KCF 算法耗时降低 2% 。

团队从事国内消防图形显示软件的开发，而我从事一个子模块的实现：独立地设计和实现工程矢量图纸图标识别模块

今市场需求[2]识别工程图纸上多个图标的位置，以替代人工标注。程序识别总比人工标注速度快，故该项目无性能需求。语言 C++，编译器 MSVC。该项目是基于 OpenCV 实现市场需求，而不是重新实现 OpenCV。

- 实现图表识别程序，获取工程图纸上的图标的位置；
- 实现 OCR，识别图标旁边的编号。OCR 的训练数据来自于萨里大学官网；

[1] 数值必定 <100% ，如果数值等于 100% ，说明程序是瞬发，不耗时。" 运算速度提高了 N 倍以上" 此类表达不严谨

[2] 该需求为空悬需求，团队里 2 个 10 年老员工未能实现。同时也是我进西门子的第一个项目，是对我的一次考验

• 实现一个辅助性的 MFC 程序，将矢量图转化为非矢量图。

从事欧洲消防控制器的研发，我是团队成员，按照协议标准实现 BACnet MS/TP 通讯协议

该通讯协议用于西门子欧洲火灾控制器与其外围设备进行数据通讯，该协议为精简化的 OSI 模型，分为三层，物理层 RS485，链路层 BACnet MS/TP LPDU，应用层为瑞士总公司定义。语言 C++11，编译器 gcc。该程序运行环境为 Linux。会利用 Samba 将虚拟机中的文件夹映射到 Windows，VS Code 作为 IDE。

舆情分析自然语言处理

我的毕设是一个自然语言处理项目，意在处理海量推特数据，以得出有意义的结论。该项目重在对若干技术的利用与整合。实现 N 个程序，如下：

• 非监督学习中的主题模型。技术：Gensim，Python；
• 从数据获取，到标注，到数据清洗，再到训练，利用监督学习对文本进行分类。技术：Weka，Java；
• 数据存储。技术：Oracle MySQL，C# ；
• 情感分析。技术：TextBlob，NLTK；
• 用 Matlab Script 生成图表。

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教育背景

硕士

2017.09 - 2019.01
莱斯特大学（世界排名：150 - 200）
高级计算机科学
成就：个人成绩排名前 5%

预科

2016.09 - 2017.05
诺丁汉特伦特大学
计算机预科
成就：个人成绩排名前 5%

本科

2010.09 - 2014.07
太原理工大学（国内 211 院校）

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工作经验

从 2018.12 至 2019.05 在西门子的一个子公司[3]从事 C++ 软件工程师，从事欧洲、国内消防控制器的研发。该公司生产消防报警产品。

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特长爱好

[3]北京西门子西伯乐斯电子有限公司 https://www.tianyancha.com/company/21339887

- 订阅、追踪油管上 CppCon（CppCon 被很多国内软件工程师忽视）；
- 喜欢拧魔方。曾在规模 700 人的年会上表演《三阶魔方速拧》，并因此成为公司妇孺皆知的员工。记录 45 秒，有视频回放；
- Google、Stack Overflow 重度用户；
- 喜欢阅读。

培训经历

培训课程：SAFe for Teams

培训机构：Scaled Agile[4]

在西门子工作期间，公司为员工购买。SAFe 是一套敏捷项目管理课程，包含 Scrum、DevOps、Kanban。适用于大型团队的合作开发，可以帮助提高团队之间的协作性，降低团队管理的复杂性。培训机构来自美国，授课教师是外籍人，授课语言是英语。

证书

- 硕士学位证
- 硕士成绩单
- 雅思成绩单
- 预科学位证
- 预科成绩单
- 《国外学历学位认证书》
- 《留学回国人员证明》
- 《离职证明》

扫描二维码下载电子版简历：

[4] https://www.scaledagile.com/enterprise-solutions/what-is-safe/

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

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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: