Yaohui Liu

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EDUCATION

University of Electronic Science and Technology of China | Communication and Information System (Master)
SEP 2020 - JUN 2023
Research: image processing, image steganography.

University of Electronic Science and Technology of China | Communication Engineering (Bachelor)
SEP 2016 - JUN 2020
Major: advanced mathematics, college physics, communication principle, digital logic circuit, signals and systems, computer communication network, data structures and algorithms, deep learning, random signal analysis.

EXPERIENCE

Microsoft | Software Development Engineer (Intern) **Jan 2022 – Apr 2022**

- **Design and development of Pattern Graph:** OnnxRuntime used to support replacement and fusion of subgraph by adding code of the whole process. However, it's cumbersome for implementation and code review when adding a new pattern. My job is to design a pattern graph to abstract the subgraph pattern of replacement and fusion. The designed pattern graph provides succinct APIs to define a pattern and implements the matching algorithm of subgraph. It could cover around 90% existing patterns, which is a trade-off between clear representation and scope of application.
- **Design and development of middle-ware of Anubis:** Anubis is a platform of cloud computation targeting multiple OS and AI frameworks. The configuration files of different OS and framework are quite different, while we want to hide the fact from users. My job is to design and implement a middle-ware to deduce the configuration by the request from web and forward it to corresponding service. The middle-ware has passed the test and been applied in production environment.

Megvii Co., Ltd | Deep-learning Engine Development (Intern) **OCT 2021 – DEC 2021**

- **Design and implementation of mobile training:** MegEngine is a deep-learning framework. Sometimes we may not be able to send data from mobile to server because of privacy and law. In this condition, we need to train the model in local environment on mobile with cpp. My job is to develop such a framework based on operators in MegEngine. It provides the abstractions of model, loss, dataset and optimizer. It is pytorch-like and could train and run a model correctly on Windows, Linux, Android and IOS. I was also responsible for writing a demo and an article for the company to introduce it.
- **Development of an OpenCL operator:** MegEngine had only naïve and CUDA implementation of operator "images2neibs". My job is to implement the operator with OpenCL. I implemented it in two ways, which are "NCHW" and "NHWCD4".

PROJECTS

- **Casbin.NET**: Casbin is an open-sourced access-control library with multi-language implementation. My job is to solve the issues of Casbin.NET and Casdoor-dotnet-sdk, and refactor the Casbin-aspnetcore to make it support 2.x version of Casbin.NET as a member of the Casbin community.
- **Tensor.NET (my own open-source project):** Tensor.NET is a lightweight and high-performance tensor library which provides numpy-like operations but .NET style interfaces. It supports generic tensor, Linq, C# native slices and so on. I have open-sourced it on Github and will continuously maintain it.
- **"AI Restaurant" Venture Project**: COVID-19 forced our university to restrict access, which made restaurant much more crowded at the end of the final class of morning. We design and implement a system to make students know the real-time count of people of restaurants so that they can avoid those restaurant with too many people. I was the leader of developer group and was responsible for the top design of the system. Besides, I implemented the counter with camera, edge-computing device and object tracking. I accelerated it with TensorRT, multi-thread and batch-inference, which increase the FPS from 6 to 30. Finally, we also implement a system to search, classify, and collect the food information of restaurants.
- **Self-made neural network framework of .NET**: Based on MathNet.Numerics, I implement a framework to train and inference neural network models. It supports full-connected layer, convolution, pooling, activation and so on.

SKILLS

Professional Skills:

- Being familiar with Linux, Git, GDB, ASP.NET core, Pytorch, common design patterns, etc.
- Assembler Language: C++, C#, Python.

Language Proficiency:

- CET-4 and CET-6 certifications.
- Having passed Postgraduate Degree English Exam.