Yue Yu

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Education

Virginia Tech, USA Jan 2023 - Now
Ph.D, Computer Engineering
Research Interests: Formal Verification, Formal Methods, Operating System

Trinity College Dublin, Ireland Aug 2021 - Aug 2022
M.Sc, Computer Science Grade: 2:1 Honor Degree

University of Washington, USA Jul 2019 - Aug 2019
Visiting Student, Electronic Engineering GPA: 3.7/4.0

Chongqing University of Posts and Telecommunications, China 2016 - 2020
B.Sc, Computer Science & Technology GPA: 3.4/4.0

Experience

Research Assistant - Virginia Tech Jan 2023 - Now
System Software Research Group Virginia, USA

- Pointer Recovery From Binary

Associate Engineer - CIENet Aug 2020 - May 2021
HSS EPC Shanghai, China

- SOAP Server,
- C++ Code Generator,
- JSON Parser.

Full Stack Developer, Soical Growth(Singapore, Remote) 2018 - 2019
Instagram bots, and data analysis. Mainly use C#. Chongqing, China

- Instagram Bots Manager.

Projects

Zephyr OS based Incremental Firmware OTA(Master dissertation) Mar 2022 - Aug 2022
Prof.Jonathan Duke, Dublin, Ireland

- This project aims to make Zephyr OS support incremental firmware update by using IPv6 over BLE. The bootloader is MCUBoot, and I plan to implement this feature as a part of MCUMGR. In this stage, I plan to make some designs on firmware format like use different sections, put LTS functions in a "stable elf section", and others in another section to get a smaller diff file and get a better performance.

GAN based Dual-layer Manga Colorization(Undergraduate dissertation) 2020 - 2021
Prof.Qiaosong Chen, Chongqing, China

- It is a two-layer Generative Adversarial Network model to colorize a manga sketch. The main challenge is that a manga sketch doesn't have grayscale information like a gray photo. Thus, it is hard to expect a one step model offers both grayscale information and color information. My idea is to split the task into two. In the first stage, there's a generator to convert the B/W image to a grayscale image, and the second stage is responsible to generate a colorful image by the previous grayscale image. The other one innovation is that I mix UNet and ResNet together in generator and the performance is good.

x64 Operating System(Personal interest) 2019 - 2020
Myself, Shanghai, China https://github.com/fishjump/LearningOS

- The main supported functions: 1. UEFI bootloader which read E820 memory map, change screen resolution, read graphic buffer information, and put kernel file in the memory then do a far jump to the kernel. 2. In the start of the kernel, configure cr3 register for paging, load gdt and idt. For the external devices, I've already made drivers for screen and keyboard. Hard disk driver is not finished yet.

Achievements

China Undergraduate MCM	China Undergraduate Mathematical Contest in Modeling 2nd Prize in Chongqing Competition Area	2018
CQUPT MCM	CQUPT Mathematical Contest in Modeling 1st Prize	2018
CQUPT Programming Contest	CQUPT Programming Contest (2017) 2nd Prize	2017
CQUPT Scholarship	3rd Tire Scholarship	2016

Technical Skills

Programming languages): C/C++, Haskell, ASM, Python
Skills: Ghidra, LLVM, Isabelle/HOL, Pytorch, OpenCV