

EDUCATION

Carnegie Mellon University, School of Computer Science

Master of Science, Information Technology

Pittsburgh, PA

Dec. 2017 (expected)

- Parallel Computer Architecture and Programming, Architectures for Software Systems, Real-Time Embedded System, Web Application Development, Introduction to Computer System

University of Science and Technology of China

M.S. in Biomedical Engineering, Medical Device

B.S. in Electronic Information Science and Technology

Hefei, China

Jul. 2014

Jul. 2011

EXPERIENCE

System Application Engineer, Ambarella Inc., Shanghai, China

Oct. 2015 - Jul. 2016

- Designed and implemented a smart rate control library, efficiently improving video compression ratio while keeping video quality for Ambarella's S2L and S3L SDK, supporting AVC/HEVC, later ported to Apple's HomeKit camera service.
- Designed and implemented Netlink module to transfer message between kernel and user-space process.

Embedded Software Engineer, Galaxycore Inc., Shanghai, China

Jul. 2014 - Sep. 2015

- Worked as one of the core Linux device driver developers for Galaxycore's video surveillance SOC.
- Implemented the Linux device driver for digital imaging sensors like OV2710, AR0130, and AVC and JPEG decoding modules using video for Linux two (V4L2) framework.
- Maintained and optimized the Linux device driver for image signal processing (ISP) and AVC encoding module based on video for Linux two (V4L2) framework.

PROJECTS

Parallel computing techniques (C/C++)

Jan. 2017 - Apr. 2017

- A parallel CUDA renderer that draws colored circles - designed and implemented data structures that can be efficiently constructed and manipulated in parallel but still maintaining operations' order and atomicity.
- Implemented and paralleled page rank algorithm, top-down and bottom-up BFS algorithms using both openMP and MPI. Handle cache coherent and shared data structures issues to achieve required performance.
- Designed and implemented a parallel server that efficiently takes advantage of a single node's processing resources and also elastically adapts to variations in input request stream load.

Resource Reservation Framework in Linux Kernel (C)

Sep. 2016 - Nov. 2016

- Designed and developed a resource reservation and enforcement framework including kernel modules, system calls and sysfs interface for task admission control on Nexus 7 tablet.
- Implemented fixed-priority processor scheduling algorithms based on tasks' budget and period, and task partitioning heuristics for multi-processor scheduling.
- Implemented power management algos: Sysclock, PM-clock, ES-RMS to manage energy consumption of realtime tasks.

Cookyourself - A website for quick recipes and easy meal ideas (Python/Javascript)

Nov. 2016

- Designed and implemented the infrastructure of a food recipe exploring website using Scrum software process.
- Designed front-end page layouts using Bootstrap/CSS, and responsive interaction using jQuery/React.
- Implemented back-end features including recipe filter, shopping list display and sending to users via email.

Dynamic Storage Allocator (C)

Jun. 2016 - Jul. 2016

- Implemented a Dynamic Storage Allocator including malloc, free, realloc and calloc interfaces.
- Implemented and compared performance of different free blocks organization strategies including implicit free list, explicit free list, segregated free list.
- The final allocator using segregated list, first fit, splitting and coalescing after block freed achieved an average of 78% memory peak utilization over 29 tests.

SKILLS

Programming Languages: C/C++, Java > Python > Javascript, HTML/CSS > Shell, Matlab

Linux Development: Device driver, Task scheduling algorithms, Video Codec library, Kernel modules

Frameworks: CUDA, OpenMP, MPI, ISPC, Django, Bootstrap, React

Tools: Vim, IntelliJ, Git, SVN, GDB, Repo, AWS