Buqian Zheng

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EDUCATION

Carnegie Mellon University Aug 2018 | Pittsburgh, PA
M.S. in Information Technology | Cum. GPA: 3.75/4

Southwest Jiaotong University July 2015 | Chengdu, China
B.E. in Electrical Engineering

SKILLS

Languages : Java • Python • C • Objective-C • Swift • Go • Standard ML • C++ • JavaScript • Racket • Ruby • HTML5 • CSS3
Tech Stacks : iOS • Android • MySQL • Redis • CUDA • OpenMP• MPI • Django • Jakarta EE • Hadoop • MapReduce • Spark
VueJS •Bootstrap • Tensorflow • Keras • UNIX • Linux • Vim • tmux • awk • Git • AWS • Docker • GCP • Azure

PROJECTS

Corgy: a GPU accelerated deep learning framework on iOS/macOS (Corgy.org) Apr - May 2018 | Pittsburgh, PA
- Designed and built a cross-platform deep learning framework using Swift that can inference neural networks on iOS/macOS.
- Intensively made use of Metal 2 to accelerate the computation using GPU and achieved more than 60x speedup on iPhone 6s.
- Implemented and optimized the performance of widely used layers including Convolutional, ReLU, Pooling, Dropout, etc.
- Finished a demo app which is able to recognize 20 classes of objects with Tiny YOLO on iOS via camera in almost real time.

GraphRats: Optimization of an Animal Geographic Distribution Model Mar 2018 | Pittsburgh, PA
- Optimized the serial program and achieved 5x speedup by exploring cache locality and reducing duplicate computation.
- Used OpenMP to implement a parallel version of shared memory model. Achieved 8x more speedup on a 6-core machine.
- Used MPICH to implement another parallel version of memory passing model. Achieved 5x speedup under same benchmark.

High Performance CUDA Circle Renderer Feb 2018 | Pittsburgh, PA
- Implemented a image renderer with Nvidia CUDA C to render image of millions depth-ordered overlapping translucent circles.
- Designed a grid-base parallel algorithm to optimize the work distribution between SMs and threads to fully exploit the parallelism of Multi-SMs of GPU and achieved ~140x speedup comparing to serial CPU version (GTX 1080 vs. E5-1660).

An Remote File Operation System using RPC Implemented in POSIX API Feb 2018 | Pittsburgh, PA
- Applied POSIX to implement a server and an interposing proxy library to redirect calls on local file system to a remote server.
- Designed and implemented a marshaling protocol to serialize the data structure that needs to be transmitted during RPC.

Online Banking System Design and Implementation Nov 2017 - Dec 2017 | Pittsburgh, PA
- Implemented an OOD banking system and encapsulated modules into RESTful micro-services using Jakarta EE and MySQL.
- Containerized it with Docker and deployed on the AWS cloud. Configured SSL to ensure the overall security.

Food recognition & scoring system Sept 2017 | Pittsburgh, PA
- Built a serverless eating habit evaluation system using AWS Lambda and DynamoDB based on sequential diet image analyzing.
- Extracted nutrition data from images by analyzing recognition results from AWS Rekognition, GCP Vision and Azure Vision.

WORK EXPERIENCE

Zhuozhuo Technology | Full Time iOS Developer Mar 2016 – Jan 2017 | Chengdu, China
Snail Network Accelerator for Mobile Game
- Built iOS-side of a customized RPC framework, optimized the response protocol and reduced net traffic by 50%.
- Encapsulated the system VPN API into a singleton manager with easy-to-use finite-state-machine like APIs.
- Implemented ~20% of the new version user interface and corresponding new functions and business logic with UIKit and Cocoa Framework, encapsulated 10+ animations into standalone components.

Fast Lemon VPN
- Developed the iOS dashboard widget for convenient VPN connection, implemented the user interface and business logic for user authentication and shop entrance, and the in-app purchase function.
- Created a tool written in Go to build and upload in-house ipa and generate itms URL so users can install from Safari.

COURSEWORK

Graduate : Parallel Computer Architecture and Programming • Distributed Systems • Intro to Computer Systems
Cloud Computing • Data Mining • Data Structure for Application • Web Application Development • Search Engine
MOOC : Advanced Software Construction in Java (MIT) • Learning From Data (Caltech) • Machine Learning (Stanford)