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PARTH CHADHA

EDUCATION

Carnegie Mellon University, Pittsburgh, PA   **GPA : 3.5/4.0**
Masters of Science in Electrical And Computer Engineering   **MAY 2017**
Delhi Technological University
Bachelor of Technology in Electrical And Electronics Engineering   **JUNE 2014**

RELEVANT COURSEWORK

Ongoing: Deep Reinforcement Learning (10-703), Parallel Computer Architecture and Programming (15-418), Optimizing Compilers for Modern Architecture (15-745)

Completed: Machine Learning (10-701), Computer Vision (16-720), Distributed Systems (15-440), Real Time Embedded Systems (18-648), Foundations of Computer Architecture (18-640), Intro to Computer Systems (15-513)

TECHNICAL SKILLS

Languages/Platforms: C/C++, GoLang, Python, TensorFlow, Torch/Lua, Caffe
Tools: gdb, CUDA, MATLAB, git, OpenMP, MapReduce, Spark

PROFESSIONAL EXPERIENCE

Software Engineer   **Kritikal Solutions- IIT Delhi**   **MAY 2014 – JULY 2015**
Low-cost Refreshable Braille Display (RBD) for Visually impaired people
- Developed the core system software on Embedded Linux platform including device execution state machine
- Developed Linux device driver of a keyboard controller for custom actions of Perkins keyboard
- Implemented the peripheral communication of RBD enabling uninterrupted communication over Serial, USB and Bluetooth

RELEVANT PROJECTS

Machine/Deep Learning Projects   **FALL, SPRING'16**
Deep Recurrent Attention Models (Master's Thesis work)
Researched on application of soft & hard attention mechanism in object classification using LSTM's and CNN and training using Reinforce algorithm. Improved Recurrent Attention architecture to allow variable size glimpses and tested on modified size varying dataset. Implemented in Torch
Cross Stitch Networks for Multi-Task Learning
Implemented Cross-Stitch based Multi-task deep learning in TensorFlow for facial landmark detection dataset and additional attributes tasks. Novel weight regularization techniques for Cross-stitch units were proposed and validated
Machine Learning coursework
Implemented Naïve Bayes, Soft-Margin SVM, Kernel Perceptron, Multi-Layer Perceptron and Hidden Markov Models on real-datasets for Machine Learning course. Currently implementing Deep Reinforcement learning algorithms such as Deep Q learning using OpenAI Gym platform.
Distributed Deep Learning on Spark
Parallelized gradient descent algorithm using Map-reduce framework in Spark for training Convolutional Neural Networks and deployed on Amazon EC2 for CIFAR dataset

Parallel Computer Architecture   **SPRING'17**
Developed a 2D circle renderer using Spatial decomposition algorithm on GTX1080 GPU. The renderer performs alpha blending and generates an output image. Emphasis was laid on splitting and assigning workload to multiple CUDA threads and thread blocks to achieve minimum rendering time while still maintaining the order and atomicity of operations.

Distributed Systems   **FALL'16**
Paxos consensus Algorithm
Implemented Paxos consensus algorithm for Key-Value store including fault-tolerance and failure recovery across multiple nodes. Developed a time-slot reservation system application using Paxos as a backend for consensus across users
Live Sequence Protocol for Bitcoin Mining
Implemented a Live Sequence Protocol for reliable communication over UDP protocol for client server communication. Used the LSP protocol and harnessed power of multiple processors for bitcoin mining.

Real-Time Kernel Development   **FALL'16**
Implemented a resource reservation framework for Linux kernel to account and enforce for real-time thread budgets. Execution time of threads is tracked/enforced through their birth, context switch in/out and death.
Implemented bin-packing heuristics for periodic tasks to be distributed across multiples cores. Users access the enforcement interface using custom syscalls