Shaleen Garg

Fourth Year Undergraduate

Computer Science and Engineering

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Education

Year	Degree	Institute	GPA
2019	CS Dual Degree	IIIT, Hyderabad	6.97/10.0 (6 semesters)
2014	AISSE, XII (CBSE)	FAIPS (DPS), Kuwait	92%
2012	CISCE, X (ICSE)	The Aryan School, Dehradun	87%

Research Project

Preemptive Scheduling on NVIDIA GPUs   *September'16 - Ongoing*

Research Project: Dr.Kishore Kothapalli(Associate Prof, IIIT-H) & Dr.Suresh Purini(Assistant Prof, IIIT-H)

- Developed a proof-of-concept scheduler using C and CUDA API which simulates preemptive scheduling and simulates time slicing for general purpose CUDA programs on NVIDIA GPUs.
- Used concepts gained in the above scheduler to provide a generic software-level preemptive scheduler for general purpose single-GPU applications.
- Trying to find and implement an approach for load balancing in multi-GPU domain involving the above developments.

Major Projects

Performance Engineering of Wireless IoT Sensors   *November'16- December'16*

Course Project: Dr.Anil Gurijala (Founder CEO of Ashira Labs)

- Designed a low-cost Wireless IoT Boilerplate hardware platform using readily available 8-Bit microcontroller (arduino micro) and other hardware modules
- The hardware is capable of housing 5-10 sensors (depending on the pins available on the arduino model)
- Tested the designed hardware platform to maximize both data transmission frequency and up-time (of the hardware), when connected to a finite remote power source like batteries
- Was successful in keeping the cost of the whole system as low as $22.

Distributed Grep (Team-Mate Mr.Vinaya Khandelwal)   *October'16 - November'16*

Course Project: Dr.Vivekananda Vellanki(Co-Founder - Stealth Mode Start Company)

- Implemented Hardtop Distributed File Systems in Java. Took care of underlying failures associated with this systems.
- Implemented generic Map-Reduce program over the HDFS and tested Distributed Grep on it.

Distributed Graph Algorithms   *May'16 - July'16*

Summer Project: Dr.Govindarajulu R(Emeritus Prof, IIIT-H)

- Implemented "Asynchronous concurrent-initiator depth first search spanning tree" and "Synchronous Breadth First Spanning Tree" in Erlang
- Tested the above algorithms on 5 nodes with graphs of size as large as 1 million vertices.

Short Term Projects

Ultimate Tic-Tac-Toe Bot   *February'16*

Course Project: Dr.Praveen Paruchuri (Associate Prof, IIIT-H), Artificial Intelligence

- A python bot to play 9x9 ultimate tic-tac-toe. The bot uses 5 ply deep Alpha-Beta pruning to evaluate the next move based on self developed heuristics to win.

DonkeyKong   *September'15*

Course Project: Dr.Raghu Reddy(Associate Prof, IIIT-H), Structured Systems Analysis and Design (SSAD)

- An ASCII implementation of the classical Donkey Kong game
- It showcases and rigorously uses all the concepts of Object Oriented Programming in python

C-Shell   *October'15*

Course Project: Dr.Suresh Purini(Assistant Prof, IIIT-H), Operating Systems

- A C implementation of the shell using commands like execvp, fork, signal et cetera
- The shell has capabilities like piping, redirection and multiple commands

Phone Wars (Team-Mates Mr.Punyaslok Pattnaik and Mr.Aagam Shah)   *April'16*

Course Project: Dr.PJ Narayanan(Professor & Director, IIIT-H), Graphics

- Produced an animated movie to showcase all the different concepts acquired in the course including camera positions, lighting et cetera.

Online Carrom Game *March'16*

Course Project: Dr.PJ Narayanan(Professor & Director, IIIT-H), Graphics
- Made an online carrom game using three.js and WebGL implementing collisions and different camera angles.

2D Maze Game *March'16*

Course Project: Dr.PJ Narayanan(Professor & Director, IIIT-H), Graphics
- A 3D computer game programmed using OpenGL C++ API. The game uses a self-developed physics engine.

NetZero Energy House for Hyderabad *April'16*

Course Project: Dr. K.S. Rajan(Associate Prof, IIIT-H), Engineering Systems
- Served as a subgroup leader in a 5 member sub-team to design the Envelope of the system
- Worked with a 25 member team to propose a fully functional NetZero Energy residential house for Hyderabad, India

P2P File-share *March'16*

Course Project: Dr. Ganesh Iyer(Visiting Faculty, IIIT-H), Computer Networks
- File transfer between two clients with TCP and UDP sockets in python.
- Supports file upload/download with MD5sum checks and indexed searching.
- It periodically checks for any changes made to the shared folders

UDP Pinger *April'16*

Course Project: Dr. Ganesh Iyer(Visiting Faculty, IIIT-H), Computer Networks
- Works as an alternative to the standard ICMP ping.
- Reports Min, Max and Average Round Trip Time and calculates percentage Packet Loss

Image Compression *March'16*

Course Project: Dr.Vineet Gandhi(Senior Research Scientist, IIIT-H), Digital Signal Analysis
- Implemented image compression using discrete cosine transform and quantization on Matlab

Relevant Courses (* Pursuing in Monsoon'17)

Data Structures and Algorithms	Distributed Systems	*Principles Of Programming-
Operating Systems	Statistical Methods in AI	-Languages
Formal Methods	Systems and Network Security	*Graph Theory
Digital Signal Analysis	Parallel and Scientific Computing	*Advanced Computer Networks
Complexity and Advanced Algorithms	*Compilers	

Computer Skills

Languages: C, C++, CUDA, Python, Java
Other Tools/Languages: LaTeX, Git
Platforms: Linux, Windows
Hardware: Arduino, ESP8266

Positions, Community Service and Co-Curricular Activities

- Teaching Assistant for Distributed Systems course, Monsoon 2017, IIIT
- Server Administrator at Center for Security, Theory and Algorithmic Research (CSTAR), IIIT
- Giving weekly science lessons to the local underprivileged children as a **volunteer** in Ashakiran at IIIT
- Runners-Up in Mens Doubles **Table-Tennis** tournament in the annual sports meet 2016, IIIT
- Second Runners-Up in Mens Singles **Table-Tennis** tournament in the annual sports meet 2016, IIIT
- Second Runners-Up in under-18 Mens Singles **Table-Tennis** in the annual sports meet at St. George's College, Mussoorie