

PAVAN KUMAR PALURI

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SUMMARY

- Highly Interested in software development, operating-system design and implementation jobs.
- Adept in building theoretical & mathematical models for realistic problems, design algorithms and software for developed models.
- Experienced in building software by converting high-level ideas into codes and have written over 6000 lines of code in C, 4000 lines of code in C++ and 2800 lines of code in Python so far.
- Familiar with operating systems like Linux, Unix, Windows and Virtualization platforms like Xen, XtratuM & WindRiver.
- Have a thorough knowledge and Understanding of various data structures.

EDUCATION

PhD.

University of Houston

2017 – Now Houston, Texas

- Major: Computer Science
- Research field: Real-Time Systems; Operating-Systems; Virtualization; Scheduling Algorithms; Cyber-Physical Systems; Linux Kernel Development; Machine-Learning.
- Enrolled for Masters in 2016, opted for PhD in 2017, transferred course credits from Masters to PhD.
- GPA: 3.40/4.00

Bachelor

VIT University

2012 – 2016 Chennai, India

- Major: Computer Science & Engineering
- GPA: 8.23/10.00

LANGUAGES

C/C++
Python
Shell Scripting, PHP
Latex
HTML,CSS,Lua,R



TEACHING ASSISTANT

Operating Systems and Programming in C/C++

University of Houston

August 2017 – Now Houston, TX, US

RESEARCH EXPERIENCE

Research in Hierarchical Real-Time Scheduling (HiRTS)

University of Houston

August 2017 – Now Houston, TX

- The **first-ever** to design a **fault-tolerance** mechanism for Virtual Machine (VM) scheduling (HiRTS-RRP model) in a Virtualized Real-Time Operating System. Link to Paper: [IEEE Xplore](#)
- **First-ever** to study the problem of efficiently mapping real-time tasks from task level to virtual machines at resource-level in **HiRTS-RRP** model.
- The **first-ever** to design and implement single-core and multi-core VM schedulers based on HiRTS-RRP model in **Xen & XtratuM hypervisors**. Also, developed several APIs and Xen hypercalls to implement efficient message passing mechanisms .
- HiRTS-RRP VM schedulers could achieve minimum latency, maximum throughput and also show better hard and soft real-time performance than contemporary Xen and XtratuM schedulers. Project Webpage: [Link](#)

Research in Real-Time Traffic Routing

University of Houston

October 2019 – Ongoing Houston, TX

- This project aims at minimizing the average travel time of all vehicles in a given network with respect to their individual travel deadlines to improve overall traffic throughput.
- This project offers a test bed based on Simulation of Urban MObility (SUMO) that can evaluate the performance of a traffic routing policy based on the average travel time of all vehicle agents in a given traffic grid.
- A "Selfless" Traffic Routing model (STR) is proposed that mostly focuses on reducing the travel times of all vehicles in a given grid. A value-based reinforcement learning strategy is used to achieve the benefits of an STP model. *work-in-progress* publication: [IEEE Xplore](#)

SKILLS

- **Hypervisors:** Xen, XtratuM, Wind River
- **Real-Time Systems:** RT-Linux, LitmusRT, RT-Xen, LithOS.
- **Tools/ Software:** Nano, Xcode, PyCharm, CLion, Nginx webserver, PHP-FastCGI, Simulation of Urban MObility (SUMO), VxWorks
- **APIs:** REST, xl-toolstack, Xen hypercalls, Libivrt, POSIX, self-developed Xen APIs, PAPI (Performance API)

PUBLICATIONS

- Cheng, A. M. K. et al. (2019). "Fault-Tolerant Regularity-Based Real-Time Virtual Resources". In: *2019 IEEE 25th International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA)*, pp. 1–12.
- Paluri, P. K. et al. (2019). "Work-in-Progress: Leveraging the Selfless Driving Model to Reduce Vehicular Network Congestion". In: *2019 IEEE Real-Time Systems Symposium (RTSS)*, pp. 548–551.
- Guangli, Pavan Kumar Paluri, and Albert M. K. Cheng (Dec. 2018). "RRP Edge Computing System". In: *International Workshop on Trustworthy & Real-time Edge Computing for Cyber-Physical Systems*. TN, USA.
- Guangli, Pavan Kumar Paluri, and Albert Mo Kim Cheng (2018). "Task Mapping in a Regularity-based Resource Partitioning Hierarchical Real-Time System". In: *Work-in-Progress of the 30th Euromicro Conference on Real-Time Systems (ECRTS)*.