

Pavan Kumar Paluri

Computer Programmer with a penchant
for Kernel Programming

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Education

PhD in Computer Science, GPA: 3.40/4.00

2017 - 2022 (Expected)

University of Houston, Houston, TX, USA

- Research Area: Real Time Operating Systems
- Courses: Computer Architecture, Operating Systems, Theory of Computation

Masters in Computer Science

2016 - 2017

University of Houston, Houston, TX, USA

- **Dropped Masters and took up PhD in Fall-2017**
- Courses: Real-Time Systems, Machine Learning, Statistical Methods in Research, Software Engineering, Natural Language Processing, Artificial Intelligence

Bachelor in Computer Science and Engineering, GPA: 8.23/10.00

2012 - 2016

Vellore Institute of Technology, Chennai, India

- **Coursework:** Computer Architecture, Data Structures and Algorithms, Software Engineering, Operating Systems

Work Experience

Research Scholar

2017 - Present

[Real-Time Systems Laboratory, Dr. Albert Cheng](#)

- Working on Hierarchical Real-Time System (HiRTS) Virtualization Framework i.e., Regularity based Resource Partitioning (RRP), that establishes great code level transparency between Task Level and Resource Level
- Implementation of RRP on both Single and Multi Core using Xen Hypervisor
- Developing an efficient Task Mapping model (Global, Partitioned and Semi Partitioned) for HiRTS-RRP framework
- Reinforcement Learning in Real-Time Traffic Routing in collaboration with Dr.Risto Miikkulainen's machine learning lab at University of Texas at Austin
- Fault Tolerance on RRP model

Teaching Assistant

2017 - Present

University of Houston, Houston, TX, USA

TA for Operating Systems - Graduate and Undergraduate (COSC 3360/6310/6360)

- Weekly Tutoring hours, grading assignments and projects
- Designing course material (Programming assignments)
- Using self-written shell-scripts and [similarity tester software](#) to check intra-class plagiarism.

Embedded Systems Intern

12/2014 - 01/2015

Indo German Institute of Advanced Technology, Vizag, India

- Implemented a prototype of Autonomous Vehicle Tracking using ARM Microcontroller (ARM-LPC2148)

Skills

C/ C++


Core Programming Languages

Go/Shell-AWK scripting/
Python/ R


Languages for APIs

HTML/CSS/JS


Web Programming Languages

Software/Platform/Tools

- **Softwares/Tools:** Linux Kernel, Git, Xen, VMWare, XI tools, Brackets, Codio, XCode, Clion, PyCharm, repl.it, tmux, GRUB, pyGrub Bootloader, Xen User-end Packages, PAPI, R studio, NLTK-packages
- **Xen Scheduler(s):** Credit Scheduler, Credit-2 Scheduler, ARINC-653, RTDS, SEDF

Publications

- Albert Cheng, Guangli Dai, **Pavan Kumar Paluri**, Mansoor Ansari, Yu Li, Darrel Knappe. [Fault-Tolerant Regularity-Based Real-Time Virtual Resources](#). At *The 25th IEEE International Conference on Embedded and Real Time Computing Systems and Applications*, RTCSA 2019, Hangzhou, China. (First Author)
- Kevin Bailey, Carlos Rincon, Guangli Dai, **Pavan Kumar Paluri**, Albert Cheng. [Implementing the Regularity-based Resource Partition Model on RT-Xen](#). At *Work-in-Progress Proceedings of 30th Euromicro Conference on Real-Time Systems, ECRTS 2018*. Barcelona, Spain. (First Author)
- Guangli Dai, **Pavan Kumar Paluri**, Albert Cheng. [Task Mapping in a Regularity-based Resource Partitioning Hierarchical Real-Time System](#). At *Work-in-Progress Proceedings of 30th Euromicro Conference on Real-Time Systems, ECRTS 2018*. Barcelona, Spain. (First Author)
- Guangli Dai, **Pavan Kumar Paluri**, Albert Cheng. [RRP Edge Computing System](#). At *1st International Workshop on Trustworthy and Real-time Edge Computing for Cyber-Physical Systems (TREC4CPS), RTSS 2018*. Nashville, Tennessee, USA. (First Author)

Mini Projects

Scheduler Utility for ARINC 653 (Avionics Application Standard Software Interface) on Xen

- Developed an automated scheduler utility file for the ARINC scheduler in Xen that automates the setup of Unprivileged Domains by taking in the addresses of all Domains running in CPU-Pool operated by ARINC scheduler.

Efficient Simulation Design for Fault-tolerant RRP model

- Developed a simulator that simulates Regularity based Resource Partitioning Model (RRP) and introduces transient faults on these resource partitions using Poisson's Distribution.

Exhaustive Study on Driving Behaviors

- Performed quality control on the dataset for Heart rate, breathing rate, perinasal perspiration, Palm EDA sensors and acceleration signals using R-programming.
- Based on the Heart rate, breathing rate, perinasal perspiration and other performance measures on 88 subjects, statistical interpretation, and deduction was performed using paired t-test.
- Test results indicated whether subjects felt stressed on applying Emotional stress or Cognitive stress or other external disturbances while driving.