



Vivek Chaturvedi
Ph.D. FIU Miami, USA
Assistant Professor, CSE
vivek@iitpkd.ac.in, 04923-226391
<https://iitpkd.ac.in/people/vivek>



Research Interests

- Computer Architecture
- Embedded Systems
- IoT
- Reliability and Security in Automotive

Brief Summary of Research

The central theme of my research is to make computing systems efficient, reliable and secure. Efficient in achieving high performance with minimized energy consumption and improved thermal profile. Reliability aware research seeks to improve the operational lifetime of the processors which is degraded due to accelerated aging and wear-out phenomena. With growing cyber-attacks, hardware security has gained a significant attention in recent times. The aim of my research on security is to mitigate threats due to hardware Trojans and malicious IPs planted inside computing systems. My current focus is on addressing reliability and security challenges in IoT and automotive. My research works are published in several top-tier IEEE/ACM Journals and Conferences such as TCAD, TVLSI, TII, DAC, DATE, ISLPED, ASP-DAC.

Projects

- Institute Grant for Advanced Architecture Lab at IIT Palakkad (INR 2800000)
- NTU Edex Grant, "Concept Visualization and simulation web portal to support study of abstract topics in computer architecture" Co-PI (SGD\$39,000)

Recent Publications

- V. Rathore, V. Chaturvedi, A.K. Singh, T. Srikanthan and M. Shafique, "Towards Scalable Lifetime Reliability Management for Dark Silicon Manycore Systems", **25th IEEE International Symposium on On-Line Testing and Robust System Design (IOLTS), July 2019 (Invited)**
- V. Rathore, V. Chaturvedi, A.K. Singh, T. Srikanthan and M. Shafique, " LifeGuard: A Reinforcement Learning-Based Task Mapping Strategy for Performance-Centric Aging Management", **IEEE/ACM/SIGDA 56th Design, Automation Conference (DAC), June 2019**
- Z. Zhou, W. Zhang, T., V. Chaturvedi, A.K. Singh, "Energy Minimization for Multi-core Platforms through DVFS and VR Phase Scaling with Comprehensive Convex Model", **IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2019**
- V. Rathore, V. Chaturvedi, A.K. Singh, T. Srikanthan and M. Shafique, " HiMap: Aging-aware Hierarchical Mapping Approach for Darksilicon Manycore Systems", **IEEE/ACM/SIGDA 21st Design, Automation & Test in Europe Conference & Exhibition (DATE), March 2018 pg. 991-996**