Vinay S Banakar

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EDUCATION

University of Wisconsin-Madison   *2020 (ongoing)*
Ph.D in Computer Science   Advisor: Prof. Remzi Arpaci-Dusseau

PES University   *2013-2017*
B.E in Computer Science and Engineering   CGPA: 8.26/10

AREAS OF INTEREST

Storage, distributed systems and systems ML.

PUBLICATIONS

[1] **Understanding and Benchmarking the Impact of GDPR on Database Systems**   *VLDB'20*
Supreeth Shastri, *Vinay Banakar,* Melissa Wasserman,
Arun Kumar, and Vijay Chidambaram

[2] **CIED - Rapid Composability of Rack Scale Resources Using Capability**   *IEEE Infra'20*
Inference Engine Across Datacenters
Vinay Banakar, Pavan Upadhya, and Maneesh Keshavan

[3] **Analyzing the Impact of GDPR on Storage Systems**   *HotStorage'19*
Vinay Banakar, Aashaka Shah, Supreeth Shastri,
Melissa Wasserman, and Vijay Chidambaram

PATENTS

[1] **Intent driven hardware placement using rack capability inference**   *201941028122*
engine across datacenters, *2019*
Vinay Banakar, Pavan Upadhya, and Maneesh Keshavan

[2] **Intelligent orchestration of disaggregated applications based**   *201941004407*
on class of service, *2019*
Tom Golway, *Vinay Banakar,*and *Sandeep Panda*

[3] **Preemptive compatibility failure detection using graph structure**   *16/168821*
learning in datacenters, *2018*
Vinay Banakar, Pavan Upadhya, and Maneesh Keshavan

[4] **Topology based root cause triangulation of hardware issues**   *16/048291*
Pavan Upadhya, Maneesh Keshavan, Naveena Kedlaya, and *Vinay Banakar*

ONGOING WORK

UW Madison	- Improving learned LSM tree based KV store (*Bourbon*) with different machine learning techniques. - Studying user space file system scale behavior - Exploring Machine Learning Optimized Systems [MLOS] - Graduate Teaching Assistant for Data Programming, *CS220*.

Work experience

HPE RnD Labs
Systems Engineer 2
2017-2020

Avdisors: *Dr. Kimberly Keeton and Dr. Sharad Singhal*
Focus: Disaggregated memory and resource orchestration
- Developed applications/benchmarks for disaggregated persistent Fabric Attached Memory (*openFAM*) to evaluate it against traditional cluster-based HPC programming models (*openSHMEM*).
- Designed and built large scale datacenter infrastructure management software (HPE OneView).
- Developed a Redfish compliant server hardware simulator.

UT Austin
Research Fellow
2018-2019

Advisor: *Prof. Vijay Chidambaram*
- Investigated the impact of privacy policies (*GDPR*) on storage systems. We modified Redis, Postgres and OracleDB to strictly comply with GDPR requirements and found up to 20x drop in throughput. This illustrated how retro fitting existing storage designs to work efficiently with new privacy policies is inadequate, and demonstrated how GDPR is really a compliance spectrum.
- We built GDPRBench, a GDPR specific benchmark that allow users to assess compliance level of a storage system and helps evaluate compliance-performance tradeoff.

HPE RnD Labs
Research intern
2017

Implemented a virtual host simulation platform that mimics ESXi instances as hosts in a VMware vCenter cluster. Scaled up to 1000+ simulated hosts which were leveraged for performance evaluation in OneView. These instances also supported mock network configurations.

Signzy Technologies
Developer intern
2016

Built peripheral UI components with unit testing using mocha.
Investigated smart contracts use cases for KYC real time validation.
Developed company's product mail service using Mandrill.

Research Associate
PES University
2015

Advisor: *Dr K. V. Subramaniam*
proposed and developed GPU support for Storm with jcuda and designed haar-cascade topology for face detection in images, we observed 6x throughput improvement between GPU enabled and normal Storm.

Awards and Accomplishments

- *Silver award* for innovation at Hewlett Packard Enterprise: $3000, *2020*
- First prize in TechnoBiz track at *8th IEEE conference on Cloud Computing in Emerging Markets*, 2019.
- Awarded 2018 ReportBee Research Fellowship.
- Multiple certificate of Appreciations – HPE RnD group
- Distinction Award at PESIT, Semester wise cash prizes for excellent academic performance.
- 2nd place at MyWired Open hack 2016, by *Cowrks*.
- 2nd place at SimpliHack'15, hackathon by *Simplilearn*.

Contributions

- Review committee: *HPE TechCon 2020*
- Artifact Evaluation Committee: *ASPLOS 2020, SOSP 2019*
- Book Contribution: **Effective Cybersecurity:** *Understanding and Using Standards and Best Practices*, Dr William Stallings *2018*.
- Open source contributions: *Apache Ratis, Postgresql and YCSB*
- Invited Talks: Virtue insight Blockchain 2019 conference *How GDPR is a double edged sword for Blockchain*, *HPE Technical Symposium'18 and 19*.