ROJA ESWARAN

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EDUCATION

Doctor of Philosophy in Computer Science   2020-2024

 Binghamton University, Watson College of Engineering, USA

   Dissertation title: "*Sharing-aware Live Migration of Virtual Machines*"

   Advisor: Prof. Kartik Gopalan, Binghamton University

Master of Science in Computer Science, GPA: **3.8/4.0**   2019-2020

Binghamton University, Watson College of Engineering, USA

Bachelor of Science in Computer Science and Engineering, GPA: **8.4/10**   2014-2018

Anna University, MEPCO Schlenk Engineering College, India

WORK EXPERIENCE

Ph.D. Student and Research Fellow   2020-2024

Operating Systems and Networks Laboratory (OSNET Lab),

Binghamton University, Watson College of Engineering, USA

Research Fellow   2022

Argonne National Laboratory, Illinois, USA

Research Fellow   2021-2022

Industrial Technology Research Institute (ITRI), Taiwan

AWARDS AND HONORS

Conference Student Travel Grant   2024

IEEE/ACM International Symposium on Cluster, Cloud, and Internet Computing

Session Chair   2024

IEEE/ACM International Symposium on Cluster, Cloud, and Internet Computing

Graduate Teaching Assistantship   2020-2024

Binghamton University, Watson College of Engineering, USA

Graduate Student Travel Grant   2023

Binghamton University, USA

Conference Student Travel Grant   2023

ACM/IEEE Symposium on Edge Computing

Research Fellow Grant   2021

Industrial Technology Research Institute (ITRI), Taiwan

PUBLICATIONS

Roja Eswaran, Mingjie Yan, Kartik Gopalan

Tackling Memory Footprint Expansion During Live Migration of Virtual Machines (Research Article)   2024

IEEE/ACM International Symposium on Cluster, Cloud, and Internet Computing (CCGrid)

Roja Eswaran, Mingjie Yan, Kartik Gopalan

Incorporating Memory Sharing-awareness in Multi-VM Live Migration (Doctoral Symposium)   2024

IEEE/ACM International Symposium on Cluster, Cloud, and Internet Computing (CCGrid)

Roja Eswaran, Mingjie Yan, Kartik Gopalan

VM Shift: Fast Intra/Inter host Live Migration of Multiple Templated Virtual Machines,   2024

IEEE Transactions on Parallel and Distributed Systems (Under Review)

Roja Eswaran, Mingjie Yan, Kartik Gopalan

Template-aware Live Migration of Virtual Machines,   2023

ACM/IEEE Symposium in Edge Computing (SEC)

Roja Eswaran, Kartik Gopalan

Addressing Virtual Interrupt Overhead in ARM,   2021

RPE Pre-print

TEACHING EXPERIENCE

As Graduate TA   2020-2024

Binghamton University, Watson College of Engineering, USA

CS 550 & CS 350: Operating Systems

CS 571: Programming Languages

OPEN-SOURCE CONTRIBUTIONS

Reduced the memory usage of Idle KUBEVIRT/EVE from 1.3G to 350MB.

Upgraded the Xen-tool version from 4.18.0 to 4.19.0 for EVE to take advantage of new QEMU features.

Multi-threaded memory-region-aware-copy to reduce copy overhead by 92% in state-of-art memcpy.

Userfaultfd-aware-Mmap to have fine-grained control over processes' memory regions.

Kernel-level Timer and Inter-processor Interrupt tests to measure the physical and virtual interrupt latency.

IOCTL interface to retrieve page frame number for virtual page number using /proc/pid/pagemap.

Enhanced QEMU/KVM live migration measurement accuracy using UDP timestamps and tcpdump for improved precision.

SOFTWARE DEVELOPMENT

Research and Development Engineer   2023-Present

Zededa Inc, San Jose, CA

File System Intern   2023

Teradata Corporation, San Diego, CA