Basavesh Ammanaghatta Shivakumar

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Date of Birth: 31st January 1992   Birth Place: Bangalore, Karnataka, India   Marital Status: Single

EDUCATION

Purdue University, West Lafayette, Indiana, USA   Aug 2017–Present
M.S + Ph.D. in System Security, Department of Computer Science   **3.75/4.0**

National Institute of Technology Karnataka, Surathkal, India   Jul 2009–May 2013
B.Tech., Department of Computer Science and Engineering   **8.06/10**

PUBLICATIONS

On the Feasibility of Exploiting Traffic Collision Avoidance System Vulnerabilities
Paul Berges, Basavesh Shivakumar, Timothy Graziano, Ryan Gerdes, and Zeynel Berkay Celik
(accepted) In 2020 IEEE Conference on Communications and Network Security (CNS) CPS-SEC Workshop

Razzer: Finding kernel race bugs through fuzzing.
Jeong, Dae R., Kyungtae Kim, Basavesh Shivakumar, Byoungyoung Lee, and Insik Shin.
In 2019 IEEE Symposium on Security and Privacy (SP), pp. 754-768. IEEE, 2019.

Incremental Learning through Graceful Degradations in Autonomous Systems
Ganapathy Mani, Bharat Bhargava, and Basavesh Shivakumar.
In 2018 IEEE International Conference on Cognitive Computing (ICCC), pp. 25-32. IEEE, 2018.

RESEARCH EXPERIENCE

Graduate Student Researcher, Purdue University   Aug 2019–Present
Safety and Security in Internet of Things Infrastructure   Prof. Berkay Celik
Currently investigating the effects of event delivery order in the Internet of Things infrastructure. Working on coming up with a solution which can guarantee partial publisher ordering of the messages with an acceptable latency. Also, to come up with a run-time solution to verify the safety of the infrastructure by doing a shadow execution.

WORK EXPERIENCE

Senior Software Development Engineer   Sep 2015–Aug 2017
FireEye, India
Was responsible for maintaining key components in the HX endpoint security product. Held ownership of Public Key Infrastructure component and identified root causes for customer issues and shipped maintenance releases.

Member of Technical Staff 2   Sep 2013–Aug 2015
VMware, India
Worked in vSphere ESXi's VMKernel resource management team and held ownership of maintaining Heap memory manager and NUMA scheduler. Identified root causes for Purple Screen of Death (PSOD) by debugging the VMKernel crash dumps with the help of debugging tools like GDB, Valgrind. (C, x86 assembly, Python). Proposed patches and wrote vProbe scripts to do dynamic instrumentation to verify the fixes.

INTERNSHIPS

Software Development Engineer Intern, Datrium, USA   May 2019–Aug 2019
Created ReycleBin 1.0 feature for Datrium's DVFS File System to enable Customers to restore unintentionally deleted VMs. (C, Python)

Software Researcher Intern, FireEye, USA   May 2018–Aug 2018
Worked in the xAgent team in Endpoint Security division; collaborated with different teams and worked on the integration of MalwareGuard (Machine Learning classifier) into other FireEye offerings. Worked on creating internal tools to enable other developers. Created test-cases in Python to improve the coverage and reliability of smoke-test. Optimized duration of tasks by identifying high priority cases.

PROGRAMMING SKILLS

Languages: C/C++, Python, Shell, x86 assembly   **Technologies:** GDB, Git, Linux

RESEARCH INTERESTS

Operating Systems, Reliable Software Engineering, Software Security, Applied Machine Learning and IoT-CPS