# Basavesh Ammanaghatta Shivakumar

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## Education

- **Purdue University** — West Lafayette, IN
  Doctor of Philosophy in Computer Science; GPA: 3.71/4.00 — Aug. 2017 – present
- **National Institute of Technology Karnataka** — Surathkal, India
  Bachelor of Technology in Computer Engineering; GPA: 8.06/10.00 — Aug. 2009 – May. 2013

## Experience

- **Datrium Inc** — Sunnyvale, CA
  Software Development Engineer Intern - DVFS File Systems — May 2019 - August 2019
  - Created ReycleBin 1.0 feature for Datrium's DVX to enable Customers to restore unintentionally deleted VMs. (C, Python)
- **Purdue University** — West Lafayette, IN
  Graduate Teaching Assistant - Operating Systems — Aug 2017 - present
  - Created lab assignments, test-cases and graded submissions for the XINU project.
  - Assisted students with debugging their programs by walking through their logic and identifying bugs.
- **FireEye** — Charlotte, NC
  Software Researcher Intern — 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.
- **FireEye CyberSecurity India** — Bangalore, India
  Software Development Engineer — Sep 2015 - Aug 2017
  - Worked in HX Server team in Endpoint Security; held ownership of maintaining Public Key Infrastructure component.
  - Identified root causes for customer issues, fixed them in both front-end and back-end and shipped maintenance releases. (C/C++, Python, NodeJS)
- **VMware India** — Bangalore, India
  Member of Technical Staff — Sep 2013 - Sep 2015
  - 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.

## Projects

- **Razzer: Finding Kernel Race Bugs through Fuzzing**: worked with Prof Byoungyoung Lee's group. Worked on implementation of hybrid fuzzer to find concurrency bugs, understand and integrate syzkaller fuzzer and analyze the root cause of Linux Kernel crashes. Paper accepted to **IEEE Sympsonium on Security and Privacy (Oakland) 2019.**
- **FTP Server and client**: Implemented FTP Server and Client in C++ as part of a semester-long project. Found vulnerabilities in the implementations of other teams and patched them to finish off the development process.

## Programming Skills

- **Languages:** C/C++, Python, Shell, x86 assembly, NodeJS **Technologies** GDB, Git, Linux
- **Interests:** Operating Systems, Reliable Software Engineering, Software Security, Applied Machine Learning