

# MUSFIQ NIAZ RAHMAN

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<b>CONTACT INFORMATION</b>	Department of Computer Science University of Pittsburgh 6404 Sennott Square Pittsburgh, PA 15260	Phone: 412-657-9778 musfiq@cs.pitt.edu <a href="http://www.cs.pitt.edu/~musfiq">http://www.cs.pitt.edu/~musfiq</a>
<b>PROFESSIONAL INTERESTS</b>	Memory Management, File-systems and Storage; Scalability, Performance and Power Optimization Techniques; Virtualization; Computer Architecture; System Reliability;	
<b>EDUCATION</b>	<b>University of Pittsburgh</b> , Pittsburgh, PA, USA Ph.D. (Candidate), Department of Computer Science, <ul style="list-style-type: none"><li>• Advisor: Dr. Bruce Childers and Dr. Sangyeun Cho</li></ul>	<b>August 2007 – present</b>
	<b>University of Pittsburgh</b> , Pittsburgh, PA, USA M.S., Computer Science (GPA 3.69 out of 4)	<b>August 2012</b>
	<b>Bangladesh University of Engineering and Technology</b> , Bangladesh B.Sc., Computer Science and Engineering (GPA 3.81 out of 4)	<b>April 2005</b>
<b>ACADEMIC EXPERIENCE</b>	<b>University of Pittsburgh</b> , Pittsburgh, PA, USA Graduate Student Researcher <ul style="list-style-type: none"><li>• Currently working on Continuous Online Memory Testing (COMeT) framework which works with the OS to detect main memory errors at runtime. (PhD Thesis)</li><li>• Developed an application-oriented power management technique where the CPU frequency is dynamically adjusted based on the running processes to improve system power saving.</li><li>• Studied and hacked various Linux kernel subsystems to understand and explore internals of the Memory Manager, Virtual File-System, Block I/O Layer and Process Manager.</li></ul>	<b>August 2007 – present</b>
	<b>Bangladesh University of Engineering and Technology</b> , Bangladesh <ul style="list-style-type: none"><li>• Low-level Programming in Microprocessor Protected Mode using C and Assembly on Intel 80386 processors.</li><li>• Real-Time and Embedded Operating Systems: Studied and worked with projects based on Micro-Controller Operating System (uC/OS), RTLinux and Linux Kernel RT Patches in 2.4 series. (Undergraduate thesis)</li></ul>	<b>2000 – 2005</b>
<b>PROFESSIONAL EXPERIENCE</b>	<b>Intel Corporation</b> , Hillsboro, OR, USA Software Engineer Intern <ul style="list-style-type: none"><li>• Performance analysis and optimization of Linux Block IO Layer and MMC stack.</li><li>• Developing a simulator for the EMMC device.</li></ul>	<b>July 2010 – December 2010</b>
	<b>Commlink Info Tech Ltd.</b> , Bangladesh Member, Research and Development <ul style="list-style-type: none"><li>• Developing flash-based storage media (SD Card) drivers.</li></ul>	<b>May 2005 – June 2007</b>

## PUBLICATIONS

### Journal Publications

**Musfiq Rahman**, Bruce R. Childers and Sangyeun Cho, “COMeT XT: Continuous Online Memory Testing with Mutli-threading Extention”, IEEE Transactions on Computers, April, 2013.

### Referred Conference Publications

**Musfiq Rahman**, Bruce R. Childers and Sangyeun Cho, “COMeT: Continuous Online Memory Test”. Pacific Rim Conf. on Dependable Computing (**PRDC**), 2011.

**Musfiq Rahman**, Bruce R. Childers and Sangyeun Cho, “StealthWorks: Emulating Memory Errors”, International Conf. on Runtime Verification (**RV**) 2010.

## HONORS AND AWARDS

A. Richard Newton Graduate Scholarship, the 45th Design Automation Conference (DAC), 2008. (Awarded under Dr. Sangyeun Cho’s research proposal)

Teaching Assistantship, Department of Computer Science, University of Pittsburgh, 2007-2011.

Dean’s List Scholarship, Bangladesh University of Engineering and Technology for academic excellence, 2000 – 2005.

## SKILLS

### Programming

- **Languages:** C, Assembly, C++, Java
  - **Libraries:** OpenMP, MPI, NUMACTL
- **Scripting:** Python, simple shell scripts

### Software Development

- **Linux Kernel Hacking:**
  - Developing device drivers and kernel modules for Linux.
  - Hacking various subsystems in Linux including memory manager, virtual file-system layer, block IO layer, process management and ext2/ext3 file-system.
  - Using /sys interface from kernel modules for configuration, communication from user-land and performance measurement purpose
- **System Programming**
  - In depth experience with File IO and Memory Management functions in UNIX.
  - Multi-threaded programming using PThreads, OpenMP and MPI.
- **Debugging:**
  - Remote-debugging Linux kernel using GDB
  - Using tracing features in Linux kernel
- **Development Tools and Practices:**
  - VIM, CScope and CTags for development environment
  - Callgraph generation using Cscope and Graphviz.
  - GIT for source repository
  - Documentation in the form of code-comments, graphs and reports
- **Performance Measurement:**
  - Tools: Perfmon, blktrace, powernap etc.
  - Benchmarks: Spec CPU2006, PARSEC
- **Virtualized Execution Environment:**
  - KVM (Linux), SIMICS

## REFERENCES

Available upon request