# NCS590 (Topic) – Research Topics in Virtualization

## Syllabus

The class syllabus can be found here

## Papers

I expect to cover at least two papers per week. Students are expected to have read the assigned papers, watch the conference talk videos if available, and engage in online discussion each week. Students will also write up a two to three page reaction to each paper which will include the following:

- A summary of the paper's important details *(2-3 paragraphs at most!)*
- Resources that were required to perform the research
- Repeatability of the research
    - Can the work be repeated by a group of SUNY Poly students? Justify your answer!
- Extendability of the research
    - What is your best idea for extending the research?
    - What resources would be required?
- Your reaction, critique, and critisim of the work
- A list of the top two references from the work that you think are worth exploring further and why

Each week students will also be required to choose one of the four reference papers they felt is worth exploring further to write an additional reaction paper on. This could be any reference listed in either of the two papers assigned for the week that the student feels is worth reading and reporting on.

This additional reaction paper should follow the same guidelines posted above.

Reaction papers should be submitted as a single document containing all three write-ups. One grade will be issued for the entire compilation each week.

## Class Schedule – *(tentative)*

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| Week 1: | Paper: How (and How Not) to Write a Good Systems Paper<br>Paper: Efficient Reading of Papers in Science and Technology | | |
| Week 2: | Paper: Xen and the art of virtualization<br>Paper: Xen and the art of repeated research | | |
| Week 3: | Paper: Disco: running commodity operating systems on scalable multiprocessors<br>Paper: Data Protection and Rapid Recovery From Attack With A Virtual Private File Server and Virtual Machine Appliances | Week 4: | Paper: Breaking up is hard to do: security and functionality in a commodity hypervisor<br>Paper: CloudVisor: retrofitting protection of virtual machines in multi-tenant cloud with nested virtualization |

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| Week 5: | Paper: Dark Clouds on the Horizon: Using Cloud Storage as Attack Vector and Online Slack Space<br>Paper: Hey, you, get off of my cloud: exploring information leakage in third-party compute clouds |
| Week 6: | Paper: Scalability, fidelity, and containment in the potemkin virtual honeyfarm<br>Paper: Live Migration of Virtual Machines |
| Week 7: | Paper: GPU virtualization on VMware's hosted I/O architecture<br>Also look at: Xen PCI Passthrough<br>And: Xen VGA Passthrough |
| Week 8: | Final Exam |

## Links

- Activate your CS account
- How to enable your personal web space
- SUNY IT Library Databases
- SOSP'13 Conference
- SOSP'11 Conference
- OSDI Conferences
- USENEIX – Best Papers
- SIGOPS – Hall of Fame