4th Annual
Ultrascale Systems Research Center (USRC) Symposium
July 31, 2019
JR Oppenheimer Study Center (“LANL Library”) – 03-0207
Jemez & Cochiti Rooms, 2nd floor

Introduction
8:50 – 9:00 Welcome & USRC Overview
Nathan DeBardeleben
USRC Co-Executive Director,
LANL Staff

Student Research Talks
9:00 – 9:15 Deep I/O: Smart Networks for Fast Storage
Zhi (George) Qiao
PhD Student, Univ. of North Texas
Mentor: Hsing-Bung Chen

9:15 – 9:30 Improving SaNSA: Spark Integration and Anomaly Detection in HPC State Analysis
Dakota Fulp, Megan Fulp
Post-baccalaureates, NMC
Mentor: Nathan DeBardeleben

9:30 – 9:45 Shortening Hamming Codes to Better Correct 2-bit Errors
Cannon McIntosh
Undergraduate, Coastal Carolina
Mentors: Laura Monroe

9:45 – 10:00 Differential Privacy for Supercomputer Sensor Data
Spencer Ortega
Masters Student, USC
Mentor: Nathan DeBardeleben, Claire Bowen

10:00 – 10:15 Profiling HPC Application Resilience using DisCVar
Stephen Penton
Post-baccalaureate, NMC
Mentor: Nathan DeBardeleben, Terry Grove

10:15 – 10:30 Examining Contextual Based Error Correction Techniques in CLAMR
Dylan Wallace
Undergraduate, Coastal Carolina
Mentor: Nathan DeBardeleben

10:30 – 10:45 Performance Characterization of DRAM-NVM Hybrid Memory Architecture for HPC Applications using Intel Optane DC Persistent Memory Modules
Onkar Patil
PhD Student, N. Carolina State Univ.
Mentor: Latchesar Ionkov

10:45 – 11:00 Algorithm Learning with the Diagonal Neural GPU
Vanessa Job
PhD Student, Univ. of New Mexico
Mentor: Laura Monroe

11:00 – 11:15 Revere: HPC Job Failure Early Alert
Alexandra DeLucia
PhD Student, Johns Hopkins Univ.
Mentor: Lissa Moore
## Student Poster Session

11:15 – 12:15

See Poster Listing

### Acknowledgements

Thank you to NMC for providing refreshments!

**USRC Student Posters**

<table>
<thead>
<tr>
<th>Title</th>
<th>Presenter</th>
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| Improving SaNSA: Integration with Spark and Tivan                     | Dakota Fulp  
Post-baccalaureate, NMC  
Mentor: Nathan DeBardeleben |
| HPC State Anomaly Detection and Visualization with SaNSA              | Megan Fulp  
Post-baccalaureate, NMC  
Mentors: Nathan DeBardeleben |
| Profiling HPC Application Resilience using DisCVar                   | Stephen Penton  
Post-baccalaureate, NMC  
Mentor: Nathan DeBardeleben |
| FI-VIS: Towards Understanding Fault Propagation through Visualization | Hailong Jiang  
PhD Student, Kent State Univ.  
Mentor: Nathan DeBardeleben |
| Examining Contextual Based Error Correction Techniques in CLAMR       | Dylan Wallace  
Undergraduate, Coastal Carolina  
Mentor: Nathan DeBardeleben |
| In-Situ Partitioning for Range Queries                                | Ankush Jain  
PhD Student, Carnegie Mellon Univ.  
Mentor: Brad Settlemeyer |
| Tiered Stripeset: Data Availability During Failure Bursts             | Huan Ke  
PhD Student, Univ. of Chicago  
Mentor: Brad Settlemeyer |
| Providing order to the world: Range query for KV-SSD                  | Mian Qin  
PhD Student, Texas A&M University  
Mentor: Brad Settlemeyer |
| Petavision: Interpolating Video and Up-Sampling Simulations           | Daniel Wang  
Post-baccalaureate, NMC  
Mentor: Howard Pritchard |
| Analyzing Excessive Memory Faults on Trinity and Trinitite           | Richard (Eli) Snyder  
Post-baccalaureate, NMC  
Mentor: Lowell Wofford |
| KrakenBoot: Firmware-Level Cluster Provisioning via UEFI Surgery      | Devon Bautista  
Masters Student, Arizona State University  
Mentor: Lowell Wofford |
| Shortening Hamming Codes to Better Correct 2-bit Errors               | Cannon McIntosh, Woohyeong Kim  
Undergraduate, Coastal Carolina  
Graduate Student, Florida State Univ.  
Mentors: Laura Monroe, Latchesar Ionkov, Mike Lang |
| Differential Privacy for Supercomputer Sensor Data                    | Spencer Ortega  
Masters Student, USC  
Mentor: Nathan DeBardeleben, Claire Bowen |
| Examining Contextual Based Error Correction Techniques in CLAMR       | Dylan Wallace  
Undergraduate, Coastal Carolina  
Mentor: Nathan DeBardeleben |