



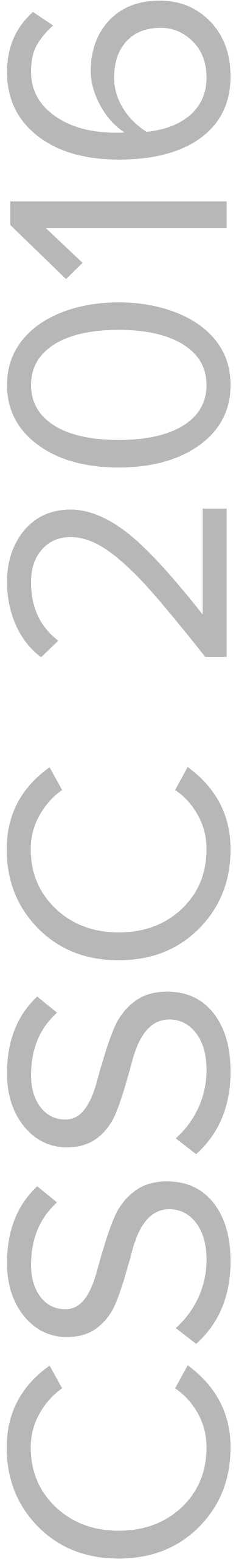
RESEARCH PRESENTATION

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Student Union Building, Ballroom A

Thursday, April 7, 2016 2:20 pm - 2:40 pm

## **RMA-MT: A Benchmark Suite for Assessing MPI Multi-threaded RMA Performance**



Reaching Exascale is expected to require leveraging massive parallelism while communicating asynchronously to help achieve good scaling at such large levels of concurrency. MPI is a good candidate for providing the mechanisms to support communicating at such large scales. Two existing MPI mechanisms are particularly relevant to Exascale, multi-threading, to support massive concurrency and Remote Memory Access (RMA) to support asynchronous communication. Unfortunately, multi-threaded MPI RMA code has not been extensively studied and no public benchmarks or proxy applications exist to assess its performance. This paper demonstrates the first available proxy applications and micro-benchmark suite for multi-threaded RMA in MPI and uses it to compare the performance of MVAPICH vs. Open MPI. Using these results RMA performance enhancements in Open MPI are implemented and evaluated.