Nawab Ali

395 Dreese Laboratories
2015 Neil Avenue
Columbus, OH 43210-1277
http://www.cse.ohio-state.edu/∼alin

Office: +1 - 614 - 592 - 1987
Home: +1 - 614 - 592 - 1987
Fax: +1 - 614 - 292 - 2911
Email:alin@cse.ohio-state.edu

Objective

To obtain a challenging, full-time position in the field of High-Performance Computing, Computer Architecture, Networking, and Software Design

Research Interests

High-Performance Computing, Parallel Architectures and File Systems, I/O, Communication Protocols, Storage Systems, Chip Multiprocessors

Education

PhD Computer Science — **GPA: 3.59**
The Ohio State University, Columbus, OH — 2004 – present

MS Computer Science — **GPA: 3.84**
University of Cincinnati, Cincinnati, OH — August 2004

MSc. (Tech.) Information Systems — **GPA: 7.91**
Birla Institute of Technology & Science, Pilani — May 2001

Work Experience

Graduate Teaching Associate
The Ohio State University — 2009 – present
- Instructor for CSE 230

Resident Associate
Argonne National Laboratory — 2008 – 2009
- Common HEC I/O Forwarding Scalability Layer

Research Aide
Argonne National Laboratory — 06/2008 – 09/2008
- Common HEC I/O Forwarding Scalability Layer

Graduate Research Associate
Ohio Supercomputer Center — 2007 – 2009
- Applicability of Object-Based Storage Devices in Parallel File Systems

Graduate Teaching Associate
The Ohio State University — 2006 – 2007
- Lab instructor for CSE 200

Graduate Research Associate
The Ohio State University — 2004 – 2005
- SRB Enabled MPI-IO Library for Access to Remote Storage

Member Technical Staff
Sun Microsystems, India — 2001 – 2002
- Sun iPlanet Portal Server

Publications

- N. Ali, P. Carns, K. Iskra, D. Kimpe, S. Lang, R. Latham, R. Ross, L. Ward, P. Sadayappan. "*Scalable I/O Forwarding Framework for High-Performance Computing Systems*", IEEE International Conference on Cluster Computing, New Orleans, LA, August 2009.
- N. Ali, A. Devulapalli, D. Dalessandro, P. Wyckoff, P. Sadayappan. "*Revisiting the Metadata Architecture of Parallel File Systems*", Proceedings of the 3^{rd} International Petascale Data Storage Workshop, ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC), Austin, TX, November 2008.
- N. Ali, A. Devulapalli, D. Dalessandro, P. Wyckoff, P. Sadayappan. "*An OSD-based Approach to Managing Directory Operations in Parallel File Systems*", IEEE International Conference on Cluster Computing, Tsukuba, Japan, September 2008.

- A. Devulapalli, D. Dalessandro, P. Wyckoff, N. Ali, P. Sadayappan. "*Integrating Parallel File Systems with Object-Based Storage Devices*", ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC), Reno, NV, November 2007.
- A. Devulapalli, D. Dalessandro, P. Wyckoff, N. Ali. "*Attribute Storage Design for Object-based Storage Devices*", 24^{th} IEEE Conference on Mass Storage Systems and Technologies, San Diego, CA, September 2007.
- N. Ali, M. Lauria. "*Improving the Performance of Remote I/O using Asynchronous Primitives*", 15^{th} IEEE International Symposium on High Performance Distributed Computing, Paris, France, June 2006.
- N. Ali, M. Lauria. "*SEMPLAR: High-Performance Remote Parallel I/O over SRB*", 5^{th} IEEE/ACM International Symposium on Cluster Computing and the Grid, Cardiff, UK, May 2005.

Selected Projects

- **Common HEC I/O Forwarding Scalability Layer** - The IOFSL project aims to design, build, and distribute a scalable, unified high-end computing I/O forwarding software layer to bridge the gap between processing trends and I/O systems so that leadership-class machines can most efficiently leverage the available storage resources.
- **Applicability of Object-Based Storage Devices in Parallel File Systems** - This project examines the feasibility of OSDs for use in parallel file systems, in particular, discovering techniques to accommodate this high-performance usage model. We are currently investigating multiple aspects of the mismatch between the needs of a parallel file system, specifically PVFS2 and the capabilities of OSDs.
- **SRB Enabled MPI-IO Library for Access to Remote Storage** - SEMPLAR is a remote, parallel I/O library that combines the standard programming interface of MPI-IO with the remote storage functionality of the SDSC Storage Resource Broker. SEMPLAR relies on parallel TCP streams to maximize the remote data throughput of an application.
- **Improving Paging Performance of Memory Intensive Applications** - The project involved looking for patterns in the run-time memory reference information of scientific applications. The patterns are used to guide prefetching and improve the page replacement algorithms of the operating system.
- **Network Load Balancing Tool** - The NLBT distributes IP traffic to multiple instances of a TCP/IP service, such as a web server, each running on a separate host within a network.

Skills

- **Programming Languages** - C, C++, Java, Perl, Verilog
- **Operating Systems** - Linux, UNIX, Windows NT/2000/XP
- **UNIX Skills** - Shell scripting, System administration, Network Programming, MPI, Linux kernel programming
- **Simulators** - Simics, Disksim, Irsim

Professional Activities

- IEEE Student Member

References

Available on request.