NAVEEN N RAVICHANDRASEKARAN

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SUMMARY

Professional Software Engineer with experience in the general areas of parallel and distributed computing. Specifically, my technical skills focus in the following areas: (i) parallel programming models and runtime systems (MPI and PGAS models like OpenSHMEM, Global Arrays, and Coarray Fortran); (ii) parallel computing architectures (Cray, multi-core systems, GPUs and Intel Xeon Phi), and (iii) high-speed interconnects (Aries, Infiniband, ethernet)

EDUCATION

University of Houston, Main Campus *December 2015*
M.S. in Computer Science - Specialization in Parallel & Distributed Systems

Anna University, India *May 2011*
Bachelors in Engineering - Electrical & Electronics Engineering

EXPERIENCE

Cray, Inc 12/26/2015 - Present
Software Engineer - Programming Environment Message Passing Toolkit *Saint Paul, MN*

· HPC and parallel programming runtime optimizations for Cray supercomputer and cluster hardware to be utilized by specific customers like U.S government and commercial petroleum industries
· Work specifically on Cray software stacks like Cray MPICH, Cray SHMEM, and Global Arrays
· Participate and represent Cray in OpenSHMEM standards committee

Cray, Inc 05/18/2015 - 12/25/2015
Intern - Programming Environment Message Passing Toolkit *Saint Paul, MN*

· Research, Prototype, and Implement new features in Cray SHMEM programming library
· Optimize Global Arrays library for NAMD and NWChem Chemistry applications

University of Houston 09/14/2013 - 05/15/2015
Research Assistant - HPC Tools *Houston, TX*

· Research Assistant to Dr.Barbara Chapman(Chair, Computer Science & Mathematics(CSM) Group - Brookhaven National Laboratory)
· Research and explore strategies for runtime optimizations, and compiler-tools interactions for large-scale parallel systems using OpenSHMEM and Coarray Fortran programming models

REFEREED CONFERENCE AND WORKSHOP PUBLICATIONS

Available on request or from Google Scholar. My full name is **Naveen Namashivayam Ravichandrasekaran** and I author all conference and workshop publications as **Naveen Namashivayam**.

PROJECTS

Current Projects

1. **Cray OpenSHMEMX**

   - Cray OpenSHMEMX is a new SHMEM library implementation developed to supersede the existing production ready Cray SHMEM library on future exascale Cray Shasta architectures

- Design and develop Cray OpenSHMEMX from scratch with support for different transport layers including DMAPP, XPMEM, and Libfabric
- Provide complete backward compatibility with Cray SHMEM with all Cray specific features

2. **Cray MPICH**
   - Create an optimized message matching layer for the MPI implementation.

Past Projects

1. **Cray SHMEM**
   Project description: Cray SHMEM is a production quality SHMEM implementation for different Cray platforms with OpenSHMEM standards compliant. **My Contributions:** I am particularly involved in maintaining library along with implementing new features as per the OpenSHMEM standards, also propose and prototype new features like Communication Contexts, Symmetric Memory Partitions and Teams(PE-Subsets).

2. **Cray Global Arrays(Cray-GA) ComEx-DMAPP**
   Project description: Global Arrays is a PGAS library from Pacific Northwest National Laboratory (PNNL). **My Contributions:** I was involved in optimizing and maintain the ComEx - DMAPP communication layer.

3. **OpenSHMEM Reference Implementation**
   Project description: University of Houston worked with *Oak Ridge National Laboratory* to standardize OpenSHMEM via a community-driven specification with a reference implementation. **My Contributions:** I have been particularly involved in the optimization of the collective communication performance.

4. **Coarray Fortran**
   Project description: Coarray Fortran is a set of new language features incorporated into the Fortran 2008 standard to enable parallel programming in Fortran with minimal changes to the language syntax. It is a joint project between University of Houston and *Total* **My Contributions:** I was particularly involved in the optimization of the Coarray Fortran runtime library with new underlying communication layers.

KEY ACTIVITIES

1. *OpenSHMEM standardization Effort*, Participate and represent Cray Inc. in OpenSHMEM standards committee. `http://openshmem.org/`

AWARDS AND ACCOMPLISHMENTS

1. *Best Paper Award*, 8th International Conference on Partitioned Global Address Space Programming Model(PGAS 2014).
2. *Graduate Assistant Tution Fellowship*, September 2013 - May 2015.
3. *Best Undergraduate Student Project*, Mepco Schlenk Eng. College, Anna University, India, 2011.

TECHNICAL STRENGTHS

Programming Languages	C/C++, Fortran, Python
Parallel Programming Models	OpenSHMEM, MPI, Coarray Fortran, OpenMP
Network Libraries	DMAPP, Verbs, Libfabric
Architectures	Cray Supercomputers, & Clusters, Intel MIC