

BREM ANAND JAGANNATHAN KRISHNAN

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12+ years of work experience in Software Product Design and development, HPC System architecture. Obtained global experience from working in India, Canada, and the UK.

Functional Skills:

- Good Knowledge in C, C++ & Python development/programming, OOD-Object oriented design, and Linux internals development.
- Strong knowledge of Data Structure algorithms.
- Knowledge of HPC in Unix, Linux, and Windows programming.
- Knowledge of the Software Engineering life cycle, **Linux System Programming (Process, Signals, and IPC), Linux Utilities, and Socket programming (TCP/UDP).**
- Strong practical programming experience in POSIX threads management, advanced HPC job scheduler concepts, and various MPI integrations in Job Schedulers PBS Pro.
- Having a good understanding of Slurm WLM and Azure cloud DevOps, MLOps.

Professional Experience:

Position	Company	Location	Duration
Principal Engineer	University of Bath	England, UK	Feb 2024 - Present
HPC Systems Developer	University of Bath	England, UK	Feb 2022 - Feb 2024
HPC Cloud Computing Software Engineer	Altair Engineering India Pvt Ltd	Bangalore, India	Apr 2021 - Feb 2022
HPC Cloud Computing Software Engineer	Altair Engineering Canada Ltd	Toronto, Canada	Sep 2019 - Mar 2021
Senior Development Engineer	Altair Engineering India Pvt Ltd	Bangalore, India	Jan 2015 - Sep 2019
Software Developer	IBM India Software Labs	Bangalore, India	Apr 2013 - Jan 2015
Software Engineer	HCL Technologies	Bangalore, India	Jun 2011 - Apr 2013

Academic Profile:

In 2011, I earned my Bachelor's degree in Electrical and Electronics Engineering from Pondicherry University, India.

Technical Expertise:

Programming Tools	gdb, gcc, g++, make, tcpdump, netstat,iostat, vmstat, valgrind, undo, purifier.
Programming Languages	Advanced C, C++, and Python
Client/OS	UNIX, GNU/Linux, Windows 11
Server/OS	UNIX, AIX, Solaris, and most of the Linux versions.
Scripting	Bash Shell Scripting, XML Scripting, Perl
Databases	MySQL, IBM DB2, Pgsq1
Defect, Tracking Tools	Jira, Confluence, CollabNet Team Forge 5.4, IBM Clear Quest.
Source Code Tools	Perforce & Git
Build & Package tools in Linux	GNU Autotools &Rpmbuild for linux rpms
Installer in windows	Wix (open source msi builder)
Continuous Integration	Travis CI, Appveyor

University of Bath: [Feb 2022 – Till now]

HPC Refresh Project at the University of Bath - Phase 3 Development

As **Principal Engineer** in the University of Bath's next-generation Cloud HPC in the UK.

Roles and Responsibilities:

- Designing and developing a cost-optimized Phase 2 cloud environment using C, C++, and Python languages in Azure cloud.
- Utilizing software engineering best practices to deliver fast, scalable, and secure research computing solutions in a multi-tier architecture.
- Performance enhancement of existing software technology to deliver desired research computing outcomes.
- Providing expert help to academic researchers, and team members.

Altair Private Limited: [Jan 2015 – Feb 2022]

As a **Senior Development Engineer** in the PBS Development team.

Product Name: **PBS Professional**

Product Description: PBS Professional® software optimizes job scheduling and workload management in high-performance computing (HPC) environments – clusters, clouds, and supercomputers – improving system efficiency and people's productivity.

Roles and Responsibilities:

- Designing and developing next-generation technology for Altair's proprietary PBS Professional® HPC workload management software.
- Architecting and developing the first-generation technology for PBS Cloud software for PBS Professional.
Researching and incorporating novel technologies to optimize PBS Professional for scalability, performance, and robustness.
- As part of the Customer problem-solving program, visited the **Las Vegas User Group Conference to help the USA Customers** have direct interaction and provided live solutions in 2017.
- Modified the PBSPro installation method to follow RPM design.
- Contributed extensively to the OPEN-SOURCE conversion project.
- Implemented a new MUNGE authentication mechanism.

IBM [April 2013 – Jan 2015]

Product Name: **IBM AIX OPERATING SYSTEM**

As an **Associate Software Engineer** in the ISST Team in **IBM ISTL**.

Roles and Responsibilities:

- Designing the algorithm for developing the tools using C programming techniques to validate the exact behavior and characteristics of kernel system calls.
- Involved in the internal tool development for the team's better performance using Korn shell, sed, awk, and C program.
- Checking the binaries compatibility of IBM DB2 with AIX OS by the action includes DB2 installation, Workload configuration, and tweaking the IO operation.
- Maintenance and execution of the scripts for automation testing, Functional test involves base (IPC, process, files handling), IO, NFS, and TCP.

HCL Technologies [June 2011 – April 2013]

Network Data Monitoring

Environment: Red Hat Linux 6.3, C programming, tcpdump tool

Project Description:

The motto of this project is to provide full control for the network administrator in controlling the network packets. The administrator can capture all the packets in the network with full details. On capturing the packets, the administrator can even change the address or data filed if required. The above capability allows the administrator to analyze packet flow in the entire network.

Roles and Responsibilities:

- Effective communication skills with engineers, external consultants, and support analysts
- Responsible for resolving technical issues/queries for design.
- Implementing network-related tools using Linux system calls.