

## **Bibrak Qamar Chandio**

Center for Research in Extreme Scale Technologies (CREST)

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<http://homes.soic.indiana.edu/bchandio/>

### **CAREER OBJECTIVES**

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Seeking a research and development role utilizing my knowledge and experience of high performance computing.

### **EDUCATION**

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**Indiana University**, Bloomington, IN, USA May-2021 (expected)  
*Doctor of Philosophy* in Computer Science

**Indiana University**, Bloomington, IN, USA May-2016  
*Master of Science* in Computer Science  
Under Fulbright Scholarship

**National University of Sciences and Technology**, Islamabad, Pakistan May-2011  
*Bachelor of Science* in Information Technology  
Under Prime Minister's National ICT Scholarship

### **RESEARCH AREAS**

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HPC, Parallel Computing, MPI, Java MPI, Scientific Computing, GPU Computing

### **WORK EXPERIENCE**

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**HPC Lab, National University of Sciences and Technology**, Islamabad, Pakistan Aug 2013 - June 2014  
*Developer*

- Developer of an open source Java message-passing library called MPJ Express <http://mpjexpress.org> that allows application developers to write and execute parallel applications for multicore processors and compute clusters/clouds.
- Contributed in design, development, testing and performance tuning of new communication devices for MPJ Express. In particular, developed a native device to enable MPJ Express to use native MPI libraries for communication and a hybrid device to exploit hybrid parallelism transparently.
- Published a paper in ICCS 2014.
- Published a paper in the Journal of Parallel Computing 2015.

**HPC Lab UAE University**, Al Ain, UAE Oct 2011 - May 2013  
*Assistant Researcher*

- Oil Reservoir Simulation on GPUs and MPI based clusters.
- Design and evaluated scheduling algorithms for divisible load applications in heterogeneous cloud environments.

### **TECHNICAL SKILLS**

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Programming Languages: C, CUDA, Java, MPI, OpenMP, MPJ Express

Scripting Languages: bash script

Databases: MySQL

Development Tools & Editors: vi, netbeans, eclipse

Operating Systems: Linux, OS X, Windows

## JOURNAL PAPERS

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Ansar Javed, **Bibrak Qamar**, Mohsan Jameel, Aamir Shafi, Bryan Carpenter **Towards Scalable Java HPC with Hybrid and Native Communication Devices in MPJ Express**, [International Journal of Parallel Programming](#), 2015, pp 1-31

## CONFERENCE PAPERS

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**Bibrak Qamar**, Ansar Javed, Mohsan Jameel, Aamir Shafi and Bryan Carpenter **Design and Implementation of Hybrid and Native Communication Devices for Java HPC**, [Procedia Computer Science 29 \(2014\) 184–197](#)

## WORKSHOP PAPERS

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Fadi N. Sibai, Saadullah Mohammad, Hashir Karim Kidwai, **Bibrak Qamar**, Falah Awwad: **Parallel Implementation and Performance Analysis of a 3D Oil Reservoir Data Visualization Tool on the Cell Broadband Engine and CUDA GPU**, [HPCC-ICISS 2012](#): 970-975

## HONORS & AWARDS

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- Recipient of the **Fulbright** Masters Scholarship 2014 (MS Computer Science from Indiana University Bloomington, IN, United States)
- Recipient of the merit based **Prime Minister's National ICT Scholarship** for undergraduate studies at NUST for 4 years of BS in IT.
- Participated as student in **2<sup>nd</sup> International Summer School on High Performance, Grid/Cloud Computing** held in UAE University Al Ain UAE.
- Participated in **Microsoft Imagine Cup 2010**. Our idea qualified to semifinal. The theme was to use technology to help solve world's toughest problems. The idea was "**Secure Donation**", a system that can track where the donation is being spent. This will ultimately encourage donors and make charities more transparent.

## SOME ACADEMIC PROJECTS

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- Ported Molecular Dynamics application on to HPX during my masters in Computer Science. <https://hpx.crest.iu.edu/applications>
- My Undergraduate Final Year Project was **Implementation and Evaluation of Scientific Simulations on HPC Architectures**. My main job was to parallelize **Conjugate Gradient** Method (an iterative method for solving System of Linear Equations) on Distributed Memory machines, Shared Memory machines and Accelerators (GPUs) and analyze the performance, cost and efficiency.  
Report/Documentation: <http://bit.ly/2d9LCAN>  
Poster: <http://bit.ly/2dF0D2u>  
Demo Simulation: [http://www.youtube.com/watch?v=J6J0TO0Q\\_MQ](http://www.youtube.com/watch?v=J6J0TO0Q_MQ)

## OTHER SERVICES

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- Worked as "**Teaching Assistant**" for the course "Fundamentals of Programming".
- Worked as "**Teaching Assistant**" for the course "Computer Fundamentals".