Ketan C Maheshwari

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790 Emory Valley Rd,
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OBJECTIVE To work on challenges pertaining to HPC systems.

EXPERIENCE
- **Linux Systems Engineer** Oak Ridge National Laboratory, September 2017 - current.
- **HPC Consultant** Center for Research Computing, University of Pittsburgh, April 2016 - August 2017. Application development and deployment, source code debugging, expert and dedicated HPC user support, implementation and management of Petabyte ZFS storage system, gave workshops on R, CUDA, advanced Linux and Python.
- **Postdoctoral Researcher** Distributed Systems Lab, Argonne National Laboratory, 2011 - 2016.
  Supporting large-scale applications on HPC infrastructures, user-engagement catalyst and researcher for HPC and HTC infrastructures. Main activities include developing, deploying and running parallel applications over IBM BG/Q, Cray XE6 and Intel supercomputers, clusters and clouds. Applications include protein docking, fMRI image processing, energy systems, seismology simulation, and power grid modelling. Funded by NSF, DOE and NIH.
- **ICT Developer(L5)** Informatics Institute(IvI), University of Amsterdam(UvA), June 2006 to May 2007.
  Globus File Transfer integration to achieve transfer of large number of big files between Academisch Medical Centrum (AMC) and Storage Resource Broker (SRB) at SARA, Amsterdam. Integrated with a Visual Resource Browser.

SKILLS
- Competent in Python, C/C++, Bash, awk, sed, LaTeX
- Practical knowledge in R, CUDA, MPI, openMP
- Linux, ranked top 5 % of Linux StackExchange Community (Jul 2017)
- Expertise in HPC toolchains, compilers, debuggers, schedulers, storage, network

EDUCATION
- **University of Nice at Sophia Antipolis**, France.
  PhD with **Highest Honors**, January 2011.
  Research on parallel workflow expression and enactment on large-scale distributed computing infrastructures for data intensive applications under the guidance of Dr. Johan Montagnat. The projects relate to the field of biomedical imaging. First, the 'Cardiac Image Processing Application' involving processing 4D (3D + time) images of cardiac motion cycle and extracting quantitative information about myocardial movement. Second, the 'Drug Discovery Application' that dealt with in-silico docking of protein molecules by filtering a million potential candidates based on their 'docking energy'.
- **University of Amsterdam**, Amsterdam, The Netherlands.
  Research M.Sc.(NVAO-accredited) in Grid Computing, August 2007.
  Masters Thesis Work
  To achieve integration and interoperability among several Workflow Management Systems and Problem Solving Environments (PSE) in order to realize a Medical Image Analysis Support System at the University of Amsterdam Academisch Medical Centrum, Amsterdam.
  CourseWork
  Distributed Stochastic Simulation, Introduction to Grid Computing, Scientific Visualization and Virtual Reality, Grid Hardware Infrastructures, Distributed Programming Methods,

Profile Project – Grid Computing (Task Farming fMRI jobs on DAS-2 Cluster using Nimrod-G and Globus), Scientific Computing on the Grid, Computational Finance, Theory and Application of Multi-Threading, Concurrent Systems.

◇ **Gujarat University**, Ahmedabad, India.
Masters in Computer Applications (MCA), September 2001.
Major Courses: Fundamentals of Programming, Database Systems, Operating Systems, Data and File Structures, Object Oriented Analysis and Design, Discrete Mathematical Structures, Numerical Methods, Software Engineering, Client Server Technologies, Networking Technologies, Computer Architecture.

◇ **Gujarat University**, Ahmedabad, India.
Bachelors in Science, June 1998.

GRANTS & SERVICE

◇ Collaborator on $ 25,000 Clinical Translational Science grant at UPitt (2017)

◇ PI on $ 2500 Amazon AWS grant, CoPI on 200K SU XSEDE compute grant (2014)

◇ Editorial board member of Future Generation Computer Systems (FGCS) Journal

◇ Guest editor-in-chief Concurrency and Computation special issue on negative results

◇ Organizer for SRMPDS'14 and ERROR'15 international workshops

◇ Invited talk: FERC (DC), CNM and LANS (ANL)

◇ PC member: IEEE Cluster, ACM APSys, SRMPDS

US WORK AUTH.

Authorized, no sponsorship required.

Selected Publications

[1] Ketan Maheshwari, Justin M Wozniak, Daniel S Katz, T Andrew Binkowski, Xiaoliang Zhong, Olle Heinonen, Dmitry Karpeyev, and Michael Wilde. Porting Ordinary Applications to Blue Gene/Q Supercomputers. In *eScience*, Munich, Germany, September 2015. IEEE.

[2] Ketan Maheshwari, Eun-Sung Jung, Jiayuan Meng, Vitali Morozov, Venkatram Vishwanath, and Rajkumar Kettimuthu. Workflow performance improvement using model-based scheduling over multiple clusters and clouds. *Future Generation Computer Systems*, 2015.

[3] Mainak Mookherjee, David Mainprice, *Maheshwari, Ketan*, Olle Heinonen, Dhenu Patel, and Anant Hariharan. Pressure induced elastic softening in framework aluminosilicate-albite (naalsi3o8). *Scientific Reports*, 6, 2016.

[4] Ketan Maheshwari, Justin Wozniak, Hao yang, Daniel Katz, Matei Ripeanu, Victor Zavala, and Michael Wilde. Evaluating Storage Systems for Scientific Data in the Cloud. In *ScienceCloud at HPDC*, Vancouver, Ca, May 2014. IEEE/ACM. **Best paper award**.

[5] Ketan Maheshwari, Ken Birman, Justin Wozniak, and Devin Van Zandt. Evaluating Cloud Computing Techniques for Smart Power Grid Design Using Parallel Scripting. In *Cluster Cloud and Grid Computing (CCGrid)*, TUDelft, Delft, Netherlands, May 2013. IEEE/ACM.

[6] Ketan Maheshwari, Marcus Lim, Lydia Wang, Ken Birman, and Robbert van Renesse. Toward a reliable, secure and fault tolerant smart grid state estimation in the cloud. In *Innovative Smart Grid Technologies*, Washington DC, USA, February 2013. IEEE-PES.