

# GIUSEPPE CONGIU

## CONTACT INFORMATION

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## EDUCATION

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- JULY 2018 Ph.D. in COMPUTER SCIENCE  
**Johannes Gutenberg University of Mainz**  
Magna cum Laude  
Dissertation: "Improving I/O Performance in HPC Through Guided Prefetching and Non-Volatile Memory Devices"  
Advisors: Prof. Dr. André Brinkmann (JGU), Dr. Sai Narasimhamurthy (Seagate)
- DECEMBER 2008 M.S. in ELECTRICAL & ELECTRONIC ENGINEERING,  
**University of Cagliari**  
Thesis: "Cell BE: Performance Analysis of the Element Interconnect Bus and Development of an Alternative Packed Switched Solution"  
Advisor: Prof. Luigi RAFFO
- SEPTEMBER 2005 B.S. in ELECTRICAL & ELECTRONIC ENGINEERING  
**University of Cagliari**

## APPOINTMENTS

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- 2021 - PRESENT Research Scientist at INNOVATIVE COMPUTING LABORATORY, UNIVERSITY OF TENNESSEE KNOXVILLE TN, USA  
*Performance Analysis and Modelling*
- 2017 - 2020 Postdoctoral Fellow at ARGONNE NATIONAL LABORATORY IL, USA  
*Programming Models and Runtime Systems*
- 2014 - 2017 Research Engineer at SEAGATE SYSTEM UK Ltd, Havant  
*High Performance Parallel I/O*
- 2011 - 2013 Early Stage Researcher at XYRATEX Ltd, Havant  
*Distributed I/O Caching*
- 2009 - 2010 Software Developer at SARDEGNA RICERCHE & IBM ITALY, Pula  
*Parallel Programming*

## SCHOLARSHIPS AND CERTIFICATES

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- FEBRUARY 2016 Marie Curie Initial Training Network Certificate  
European Commission funded Ph.D. programme

## PROFESSIONAL ACTIVITIES

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### Projects

- 2021 - PRESENT PAPI: <https://www.icl.utk.edu/papi>
- 2017 - 2020 MPICH: <https://www.mpich.org>
- 2016 - 2017 SAGE: <http://www.sagestorage.eu>
- 2016 - 2017 EsiWace: <https://www.esiwace.eu>
- 2013 - 2017 DEEP-ER: <https://www.deep-projects.eu>
- 2011 - 2013 SCALUS (SCALing by mean of Ubiquitous Storage)
- 2009 - 2010 MIACell (Medical Image Analysis on Cell broadband engine)

## Technical Reviewer for International Journals

- 2022 IEEE Micro
- 2021 Elsevier Journal of Parallel and Distributed Computing (JPDC)
- 2019 Concurrency and Computation: Practices and Experience (CPE)
- 2018 Elsevier Journal of Parallel Computing (PARCO)
- 2017 Elsevier Journal of Parallel and Distributed Computing (JPDC)
- 2017 IEEE Transaction on Parallel and Distributed Systems (TPDS)

## Technical Reviewer for International Conferences and Workshops

- 2023 IEEE Hot Interconnects Symposium (HOTI)
- 2023 IEEE/ACM International Conference for High Performance Computing, Networking, Storage and Analysis (SC)
- 2022 IEEE Hot Interconnects Symposium (HOTI)
- 2020 IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGRID)
- 2020 IEEE International Workshop on Accelerators and Hybrid Exascale Systems (AsHES)
- 2019 IEEE International Workshop on Accelerator Programming Using Directives (WACCPD)
- 2019 IEEE Conference on Data Science and Systems (DSS)
- 2016 IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGRID)
- 2015 IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGRID)

## Program Committee Member

- 2023 Program Committee Member of the IEEE Hot Interconnects Symposium (HOTI)
- 2023 Program Committee Member of the IEEE/ACM International Conference for High Performance Computing, Networking, Storage and Analysis (SC), Poster Session
- 2022 Program Committee Member of the IEEE Hot Interconnects Symposium (HOTI)
- 2020 Program Committee Member of the IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGRID)
- 2020 Program Committee Member of the IEEE International Workshop on Accelerators and Hybrid Exascale Systems (AsHES)
- 2019 Program Committee Member of the IEEE International Workshop on Accelerator Programming Using Directives (WACCPD)
- 2019 Program Committee Member of the IEEE Conference on Data Science and Systems (DSS)

## Invited Talks

- 2019 The 9th IEEE International Workshop on Accelerators and Hybrid Exascale Systems: Evaluating the Impact of High Bandwidth Memory on MPI Communication

## Tutorials and Talks

- 2022 VI-HPS Tuning Workshop: PAPI (Performance API) Introduction & Overview
- 2019 Yearly Argonne MPI Tutorial: Hybrid Programming Models, MPI+Accelerators (GPUs)
- 2019 National Center for Supercomputing Applications (NCSA), Petascale Institute: MPI Collectives, MPI Shared Memory and MPI+Accelerators

## PUBLICATIONS

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- 2018 G. Congiu, P. Balaji, "Evaluating the Impact of High-Bandwidth Memory on MPI Communications" 2018 IEEE International Conference on Computing and Communications (ICCC), Chengdu China, 2018
- 2017 G. Congiu, M. Grawinkel, F. Padua, J. Morse, T. Süß and A. Brinkmann, "MERCURY: A Transparent Guided I/O Framework for High Performance I/O Stacks" 2017 IEEE Euromicro International Conference on Parallel, Distributed and Network-based Processing (PDP), St. Petersburg, 2017. doi: 10.1109/PDP.2017.83
- 2016 G. Congiu, S. Narasimhamurthy, T. Süß and A. Brinkmann, "Improving Collective I/O Performance Using Non-volatile Memory Devices," 2016 IEEE International Conference on Cluster Computing (CLUSTER), Taipei, 2016, pp. 120-129. doi: 10.1109/CLUSTER.2016.37
- 2014 G. Congiu, M. Grawinkel, F. Padua, J. Morse, T. Süß and A. Brinkmann, "POSTER: Optimizing scientific file I/O patterns using advice based knowledge," 2014 IEEE International Conference on Cluster Computing (CLUSTER), Madrid, 2014, pp. 282-283. doi: 10.1109/CLUSTER.2014.6968763
- 2012 G. Congiu, M. Grawinkel, S. Narasimhamurthy and A. Brinkmann, "One Phase Commit: A Low Overhead Atomic Commitment Protocol for Scalable Metadata Services," 2012 IEEE International Conference on Cluster Computing Workshops, Beijing, 2012, pp. 16-24. doi: 10.1109/ClusterW.2012.16