

Moustafa ABDELBAKY

University of California, Berkeley

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RESEARCH INTERESTS

—o Parallel & Distributed Systems —o Machine Learning —o Cloud-Edge Computing —o Blockchains
—o Internet of Things (IoT) & Real-time Applications

EDUCATION

Postdoc **University of California, Berkeley**
Electrical Engineering & Computer Science, 2017 - Present
Advisor: David E. CULLER

PhD **Rutgers University**
Electrical & Computer Engineering, MAY 2017
Advisor: Manish PARASHAR

MS **Rutgers University**
Electrical & Computer Engineering, MAY 2012

BS **Rutgers University**
Electrical & Computer Engineering, MAY 2008
Computer Science, MAY 2008

AWARDS AND HONORS

2017	Dissertation nominated for the ACM Doctoral Dissertation Award
June 2017	PhD Forum Award, IPDPS 2017
May 2017	Academic Achievement Award, ECE, Rutgers University
December 2015	Cloud Challenge Award, UCC 2015
2013-2014	IBM PhD Scholarship Award
2012-2013	IBM PhD Fellowship Award
2011-2012	IBM PhD Fellowship Award
May 2011	Scale Challenge Award, CCGrid 2011

PRESS COVERAGE

- PC.1 C-Ports: a prototype framework developed with IBM T.J. Watson Research Center won the **UCC Challenge award** and was featured in [Fortune magazine](#), [IBM Developer Works](#), [Docker Weekly Blog](#), [First Post](#), [Reefeed](#), [Cloud FAQs](#), [Container House](#), [New Relic](#), [Drag Plus](#), [Docker Scoop](#), and [Mycamms](#).
- PC.2 **iCode**: a prototype framework developed with IBM T.J. Watson Research Center and UT-Austin won the **SCALE Challenge** and was featured in [ACM TechNews](#), [Communications of the ACM](#), [HPC Wire](#), [insideHPC](#), [Futurity](#), [RutgersToday](#), [Media Newswire](#), [ComputerWorld-Australia](#), [ComputerWorld-New Zealand](#), [Network World](#), [IT World](#), [MacWorld](#), [CIO](#), [CIO Peru](#), [BetaNews](#), [InfoWorld](#), [idealog \(NZ\)](#), [Primeur Magazine](#), [OSP](#), [GenomeWeb](#), and [PC World \(Middle East\)](#).
- PC.3 A project for using virtual reality for tele-rehabilitation was featured in [Science Daily](#), [Rutgers News](#), [Red Orbit](#), [Loop](#), [Medical Mal Blog](#), [EurekAlert](#), and [Media dis&dat](#).

PROFESSIONAL EXPERIENCE

UNIVERSITY OF CALIFORNIA, BERKELEY	EECS Postdoctoral Scholar, AUG'17 - PRESENT BETS GROUP, RISE LAB Advisor: David E. CULLER
LAWRENCE BERKELEY NATIONAL LAB	Affiliate Postdoctoral Fellow, MAY'19 - PRESENT GRID INTEGRATION GROUP, ENERGY STORAGE & DISTRIBUTED RESOURCES DIVISION
PINGTHINGS, INC. RUTGERS UNIVERSITY	Cloud Engineer Consultant, SEP'19 - PRESENT ECE Graduate Researcher, SEP'09 - JUL'17 RUTGERS DISCOVERY INFORMATICS INSTITUTE (RDI ²) Advisor: Manish PARASHAR
IBM T. J. WATSON RESEARCH CENTER	Research Intern, Summers 2010-2015 CLOUD COMPUTING, SYSTEMS AND TECHNOLOGY GROUP, 2015 DEEP COMPUTING, SYSTEMS AND TECHNOLOGY GROUP, 2010-2014
PRINCETON UNIVERSITY	Software Developer, JAN'09 - OCT'09 PRINCETON PLASMA PHYSICS LABORATORY (PPPL)
RUTGERS UNIVERSITY	Undergraduate Researcher, AUG'07-AUG'09 THE APPLIED SOFTWARE SYSTEMS LABORATORY (TASSL), SEP'08-AUG'09 Advisor: Manish PARASHAR THE HUMAN-MACHINE INTERFACE LABORATORY, JAN'08-AUG'09 Advisor: Grigore BURDEA THE CENTER FOR ADVANCED INFORMATION PROCESSING, AUG'07-AUG'09 Advisor: Michael L. BUSHNELL

PATENTS

- P1 Burdea, G., AbdelBaky, M., and Rabin, B., 2014. Periodic evaluation and telerehabilitation systems and methods. U.S. Patent 8,758,020.
- P2 "Idle Datacenter Resource Donation," Provisional Patent Filed, Full Patent Pending.

PUBLICATIONS

In Preparation

- IP1 **AbdelBaky, M.**, Fierro, G.T., Sreekanti, V., Kolb, J., Gonzalez, J.E., Hellerstein, J.M., and Culler D.E., Serverless Computing Across Hybrid Cloud-Edge Infrastructure.
- IP2 **AbdelBaky, M.**, Sreekanti, V., Kolb, J., Fierro, G.T., Yadwadkar, N., Kim, H.S., Gonzalez, J.E., Hellerstein, J.M., and Culler D.E., Cloud vs. Edge: A Berkeley View on Systems Challenges in Emerging Computing Utilities.
- IP3 **AbdelBaky, M.**, Lengyel, D., Fierro, G.T., Prakash, A.K., Clark, C., Gupta, P., Spangher, L., Panagopoulos, A.A., Pritoni, M., Peffer, T., and Culler, D.E., Reinforcement Learning for Smart Building Control.

Journals, Conferences, and Workshops

- P1 2020 – Kolb, J., **AbdelBaky, M.**, Katz, R.H., and Culler, D.E., Core Concepts, Challenges, and Future Directions in Blockchain: A Centralized Tutorial. ACM Computing Surveys (**ACM CSUR**).
- P2 2019 – Fierro, G.T., Pritoni, M., **AbdelBaky, M.**, Lengyel, D., Leyden, J., Prakash, A., Gupta, P., Raftery, P., Peffer, T., Thomson, G., and Culler, D.E., Mortar: An Open Testbed for Portable Building Analytics. ACM Transactions on Sensor Networks (**ACM TOSN**).

- P.3 2019 – **AbdelBaky, M.** and Parashar, M., A General Performance and QoS Model for Distributed Software-Defined Environments. **IEEE Transactions on Services Computing**.
- P.4 2019 – Andersen, M.P., Kumar, S., **AbdelBaky, M.**, Fierro, G.T. , Kolb, J., Kim, H.S., Culler, D.E., and Popa, R.A., WAVE: A Decentralized Authorization Framework with Transitive Delegation. The 28th USENIX Security Symposium (**USENIX Security'19**).
- P.5 2019 – Zamani, A.R., **AbdelBaky, M.**, Balouek-Thomert, D., Villalobos, J.J., Rodero, I. and Parashar, M., Submarine: A Subscription-based Data Streaming Framework for Integrating Large Facilities and Advanced Cyberinfrastructure. **Concurrency and Computation: Practice and Experience**.
- P.6 2018 – Fierro, G.T., Pritoni, M., **AbdelBaky, M.**, Raftery, P., Peffer, T., Thomson, G., and Culler, D.E., Mortar: An Open Testbed for Portable Building Analytics. The 5th ACM International Conference on Systems for Built Environments (**BuildSys'18**). **Best Presentation Award**.
- P.7 2018 – **AbdelBaky, M.**, Diaz-Montes, J. and Parashar, M. Software-Defined Environments for Science & Engineering. **The International Journal of High Performance Computing Applications**.
- P.8 2017 – Zamani, A.R., **AbdelBaky, M.**, Balouek-Thomert, D., Villalobos, J.J., Rodero, I. and Parashar, M., Submarine: A Subscription-based Data Streaming Framework for Integrating Large Facilities and Advanced Cyberinfrastructure. The 8th International Workshop on Data-Intensive Computing in the Clouds, in conjunction with the 30th International Conference for High Performance Computing, Networking, Storage and Analysis (**SC'17**).
- P.9 2017 – **AbdelBaky, M.**, Zou, M., Zamani, A.R., Renart, E., Diaz-Montes, J., and Parashar, M., Computing in the Continuum: Combining Pervasive Devices and Services to Support Data-driven Applications. The 37th IEEE International Conference on Distributed Computing Systems (**ICDCS'17**).
- P.10 2017 – **AbdelBaky, M.**, Diaz-Montes, J. and Parashar, M., Towards Distributed Software-Defined Environments. The 2017 IEEE/ACM 17th International Symposium on Cluster, Cloud and Grid Computing (**CCGrid'17**).
- P.11 2017 – **AbdelBaky, M.**, Diaz-Montes, J., Unuvar, M., Romanus, M., Steinder, M., Rodero, I. and Parashar, M., Enabling Distributed Software-Defined Environments Using Dynamic Infrastructure Service Composition. In Proceedings of the 2017 IEEE/ACM 17th International Symposium on Cluster, Cloud and Grid Computing (**CCGrid'17**).
- P.12 2016 – Wang, J., **AbdelBaky, M.**, Diaz-Montes, J., Purawat, S., Parashar, M. and Altintas, I., Kepler+ CometCloud: Dynamic Scientific Workflow Execution on Federated Cloud Resources. The 2016 3rd Workshop on Advances in the Kepler Scientific Workflow System and Its Applications. In conjunction with the International Conference on Computational Science (**ICCS'16**).
- P.13 2015 – **AbdelBaky, M.**, Unuvar, M., Diaz-Montes, J., Parashar, M. and Steinder, M., Docker Containers Across Multiple Clouds and Data Centers. The 2015 IEEE/ACM 8th International Conference on Utility and Cloud Computing (**UCC'15**). **Winner of the 2015 Cloud Challenge Award – Category 2**.
- P.14 2015 – **AbdelBaky, M.**, Diaz-Montes, J., Zou, M. and Parashar, M., A Framework for Realizing Software-Defined Federations for Scientific Workflows. The 2nd International Workshop on Software-Defined Ecosystems co-located with the 24th ACM International Symposium on High-Performance Distributed Computing (**HPDC'15**).
- P.15 2015 – Diaz-Montes, J., **AbdelBaky, M.**, Zou, M. and Parashar, M., CometCloud: Enabling Software-Defined Federations for End-to-End Application Workflows. **IEEE Internet Computing**.
- P.16 2013 – Parashar, M., **AbdelBaky, M.**, Rodero, I. and Devarakonda, A., Cloud Paradigms & Practices for Computational & Data-enabled Science and Engineering. **IEEE Computing in Science & Engineering**.

- P.17 2012 – Qi, X., Xing, F., Ghadge, M., Rodero, I., **AbdelBaky, M.**, Parashar, M., Sadimin, E., Foran, D.J. and Yang, L., Content-based Image Retrieval on Imaged Peripheral Blood Smear Specimens using High Performance Computation. The Data & Compute-Intensive Clinical & Translational Imaging Applications workshop. In conjunction with the 15th International Conference on Medical Image Computing and Computer Assisted Intervention (**DICTA-MICCAI'12**).
- P.18 2012 – **AbdelBaky, M.**, Parashar, M., Kim, H., Jordan, K.E., Sachdeva, V., Sexton, J., Jamjoom, H., Shae, Z.Y., Pencheva, G., Tavakoli, R. and Wheeler, M.F., Enabling High-performance Computing as a Service. **IEEE Computer**. Published as the featured research in October 2012.
- P.19 2012 – **AbdelBaky, M.**, Kim, H., Rodero, I. and Parashar, M., Accelerating MapReduce Analytics Using CometCloud. The 2012 IEEE 5th International Conference on Cloud Computing (**IEEE CLOUD'12**).
- P.20 2010 – Huber, M., Rabin, B., Docan, C., Burdea, G.C., **AbdelBaky, M.** and Golomb, M.R., Feasibility of Modified Remotely Monitored In-home Gaming Technology for Improving Hand Function in Adolescents With Cerebral Palsy. **IEEE Transactions on Information Technology in Biomedicine**.
- P.21 2010 – Golomb, M.R., McDonald, B.C., Warden, S.J., Yonkman, J., Saykin, A.J., Shirley, B., Huber, M., Rabin, B., **AbdelBaky, M.**, Nwosu, M.E. and Barkat-Masih, M., In-home Virtual Reality Video game Telerehabilitation in Adolescents With Hemiplegic Cerebral Palsy. **Archives of physical medicine and rehabilitation**. Published as the leading paper in January 2010.
- P.22 2009 – Kim, H., **AbdelBaky, M.** and Parashar, M., CometPortal: A Portal for Online Risk Analytics Using CometCloud. In Proceedings of the 18th International Conference on Computing Theory and Applications (**ICCTA'09**).
- P.23 2009 – Golomb, M.R., Barkat-Masih, M., Rabin, B., **AbdelBaky, M.**, Huber, M. and Burdea, G., Eleven Months of Home Virtual Reality Telerehabilitation - Lessons Learned. The 2009 IEEE Virtual Rehabilitation International Conference (**ICVR'09**).
- P.24 2008 – Huber, M., Rabin, B., Docan, C., Burdea, G., Nwosu, M.E., **AbdelBaky, M.** and Golomb, M.R., PlayStation 3-based Tele-rehabilitation for Children With Hemiplegia. The 2008 IEEE Virtual Rehabilitation International Conference (**ICVR'08**).

Invited Papers & Reports

- I.1 2018 – Translational Data Science - Industry / Academic Confluence, Conference Final Report, Berkeley Institute for Data Science (BIDS), University of California, Berkeley.
- I.2 2017 – Zamani, A.R., **AbdelBaky, M.**, Balouek-Thomert, D., Rodero, I. and Parashar, M., Supporting Data-driven Workflows Enabled by Large Scale Observatories. The 1st International Workshop on Workflow Science, co-located with the 13th IEEE International Conference on eScience (**eScience'17**).
- I.3 2015 – Parashar, M., **AbdelBaky, M.**, Zou, M., Zamani, A.R. and Diaz-Montes, J., Realizing the Potential of IoT Using Software-Defined Ecosystems. The 2015 IEEE 8th International Conference on Cloud Computing (**IEEE CLOUD'15**).
- I.4 2014 – **AbdelBaky, M.**, Diaz-Montes, J., Johnston, M., Sachdeva, V., Anderson, R.L., Jordan, K.E. and Parashar, M., Exploring HPC-based Scientific Software as a Service Using CometCloud. The IEEE 2014 International Conference on Collaborative Computing: Networking, Applications and Worksharing (**CollaborateCom'14**).
- I.5 2014 – Diaz-Montes, J., **AbdelBaky, M.**, Zou, M. and Parashar, M., Software-Defined Federated Cyber-infrastructure for Science & Engineering. The 2014 ACM international workshop on Software-Defined Ecosystems co-located with the 23rd ACM International Symposium on High-Performance Distributed Computing (**HPDC'14**).
- I.6 2012 – Parashar, M., **AbdelBaky, M.**, Rodero, I. and Devarakonda, A., Cloud Paradigms and Practices for CDS&E. Rep. Print. Cloud and Autonomic Computing Center Research Report.

PRESENTATIONS

Talks

- PIT.1 **AbdelBaky, M.**, Sreekanti, V., Fierro, G.T., Kolb, J., Gonzalez, J.E., Hellerstein, J., and Culler, D.E., 2020, January. Cloudless Computing: Serverless Computing Across Hybrid Cloud-Edge Infrastructure. VMware, Palo Alto, CA.
- PIT.2 Fierro, G.T., **AbdelBaky, M.**, and Culler D.E., 2018, May. Brick: Using Metadata to Write Portable Models, Analytics and Controls. The RISE Summer Retreat, Incline Village, NV.
- PIT.3 **AbdelBaky, M.**, 2018, May. Using Reinforcement Learning in Smart Buildings. A part of the CS Seminar, Lawrence Berkeley National Laboratory, Berkeley, CA.
- PIT.4 **AbdelBaky, M.** and Panagopoulos, A.A., 2018, January. Using Reinforcement Learning in Smart Buildings. The RISE Winter Retreat, Monterey, CA.
- PIT.5 **AbdelBaky, M.** 2017, December. Programming and Managing Distributed Software-Defined Environments. A part of the BETS Group Seminars, University of California, Berkeley.
- PIT.6 **AbdelBaky, M.**, Panagopoulos, A.A., and Fierro G., 2017, October. Exploring Machine Learning Opportunities in the Context of IoT. A part of the RISE Lab Seminars, University of California, Berkeley.
- PIT.7 Parashar, M. and **AbdelBaky, M.**, 2014, August. Exploring Computational Frameworks For Future Computational Chemistry. A part of the “The Future of Computational Chemistry,” Division of Physical Chemistry, 248th ACS National Meeting, San Francisco, CA.
- PIT.8 **AbdelBaky, M.**, 2014, May. Running Value at Risk Analysis Using High Performance Computing as a Service. A part of the brown bag seminars at the Department of Management Science and Information Systems, Rutgers, The State University of New Jersey, Piscataway, NJ.
- PIT.9 **AbdelBaky, M.** and Parashar, M., 2013, July. Building Platform as a Service for Scientific Applications. The Code and Data Interoperability Workshop, NSF Sustainable Software for Chemistry and Materials, Virginia Tech, Blacksburg, VA.
- PIT.10 **AbdelBaky, M.**, Parashar, M., and Jordan, K.E., 2013, March. Cloud Computing Practices for Scientific Computing Applications. A part of “the Computational Science in the Exascale Era - Challenges and Opportunities” Mini Symposium at the 2013 SIAM Conference on Computational Science and Engineering, Boston, MA.
- PIT.11 **AbdelBaky, M.**, Watzl, J., and Parashar, M., 2012, April. Cloudy With A Chance Of Charity. A part of the “Entrepreneurship Helping Developing Economies” panel, Rutgers Entrepreneurship Day, New Brunswick, NJ.
- PIT.12 **AbdelBaky, M.**, 2010, November. Supercomputing: There’s an App for that!. An invited talk at KAUST University Booth, International Conference for High Performance Computing, Networking, Storage and Analysis (SC10), New Orleans, LA.

Posters & Demonstrations

- PD.1 **AbdelBaky, M.**, Sreekanti, V., Fierro, G.T., Kolb, J., Gonzalez, J.E., Hellerstein, J., and Culler, D.E., 2020, January. Cloudless Computing: Serverless Computing Across Hybrid Cloud-Edge Infrastructure. The RISE Winter Retreat, Monterey, CA.
- PD.2 Lengyel, D., **AbdelBaky, M.**, Panagopoulos, A.A., Fierro, G., Pritoni, M., Peffer, T., Gonzalez, J., and Culler, D.E., 2019, February. A Digital Twin for Smart Buildings: A Data Driven Approach to Thermal Modeling. The BERCC Energy Summit, Berkeley, CA.

- PD.3 Lengyel, D., **AbdelBaky, M.**, Panagopoulos, A.A., Fierro, G., Pritoni, M., Peffer, T., Gonzalez, J., and Culler, D.E., 2019, January. A Digital Twin for Smart Buildings: A Data Driven Approach to Thermal Modeling. The RISE Winter Retreat, Monterey, CA.
- PD.4 Fierro, G.T., Pritoni, M., **AbdelBaky, M.**, Raftery, P., Peffer, T., Thomson, G., and Culler, D.E., 2019, January. Mortar: An Open Testbed for Portable Building Analytics. The RISE Winter Retreat, Monterey, CA.
- PD.5 Kolb, J., **AbdelBaky, M.**, Andersen, M., and Culler D.E., 2018, May. Implementing Immutable, Append-Only Cloud Storage for WAVE. The RISE Summer Retreat, Incline Village, NV.
- PD.6 **AbdelBaky, M.**, Fierro, G., Lengyel, D., Panagopoulos, A.A., Pritoni, M., Peffer, T., Gonzalez, J., Stoica, I., Katz, R., and Culler, D.E., 2018, January. If Reinforcement Learning is the Answer is Smart Building Control the Question? The RISE Winter Retreat, Monterey, CA.
- PD.7 Devarakonda, A., **AbdelBaky, M.**, Claus, B.L, Rodero, I., Haldeman, M., Parashar, M., 2012, May. Accelerating Asynchronous Replica Exchange on Large-Scale Distributed Heterogeneous HPC Resources. The 5th IEEE International Scalable Computing Challenge (SCALE), in conjunction with the 12th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, Ottawa, Canada. **(Finalist)**.
- PD.8 Kim, H., **AbdelBaky, M.**, and Parashar, M., 2011, September. Enabling Science and Engineering Workflows on Dynamically Federated Cloud Infrastructure using CometCloud. In China-US Software Workshop, KIAA Institute, Peking University, Beijing, China.
- PD.9 **AbdelBaky, M.**, Parashar, M., Kim, H., Jordan, K.E., Sachdeva, V., Sexton, J., Jamjoom, H., Shae, Z.Y., Pencheva, G., Tavakoli, R. and Wheeler, M.F., 2011, May. A Scalable Ensemble-based Oil-Reservoir Simulations using Blue Gene/P-as-a-Service. The 4th IEEE International Scalable Computing Challenge (SCALE), in conjunction with the 11th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing at Newport Beach CA. **(1st Place)**.
- PD.10 **AbdelBaky, M.**, Jordan, K.E., Parashar, M., and Sachdeva, V., 2010, November. Cloudy with a Chance of Supercomputing: A Framework for Enabling Supercomputing Resources as HPC Clouds. In Early Adopters PhD Workshop 2010, International Conference for High Performance Computing, Networking, Storage and Analysis (SC10), New Orleans, LA.
- PD.11 **AbdelBaky, M.**, Parashar, M. and Jordan, K.E., 2010, November. CO2 Sequestration on HPC Clouds. International Conference for High Performance Computing, Networking, Storage and Analysis (SC10), New Orleans, LA.
- PD.12 **AbdelBaky, M.**, Parashar, M. and Jordan, K.E., 2009, November. System Level Acceleration and Interactive Supercomputing. International Conference for High Performance Computing, Networking, Storage and Analysis (SC09), Portland, OR.

TEACHING EXPERIENCE & MENTORSHIP

Tutorials

- PT.1 Diaz-Montes, J., **AbdelBaky, M.** and Parashar, M., 2015, September. Enabling Software-Defined Federations using CometCloud. The 9th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO), Cambridge, MA, USA.
- PT.2 Parashar, M. and **AbdelBaky, M.**, 2012, July. Federating HPC, Cyber-infrastructure and Clouds using CometCloud. Virtual School of Computational Science & Engineering Summer School, Bloomington, IN, USA.
- PT.3 **AbdelBaky, M.**, Kim, H., Rodero, I. and Parashar, M., 2012, May. Developing and Deploying Applications on Federated Clouds using CometCloud. The 12th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid), Ottawa, Canada.

Areas of Teaching Interest

- Introduction to Programming
- Introduction to Data Science
- Data Structures and Algorithms
- Principles of Programming Languages
- Networks
- Operating Systems
- Software Engineering
- Parallel and Distributed Systems
- Cloud-Edge Computing and Their Role in the Internet of Things
- Blockchain vs. Distributed Computing
- Ethics in Computer Science & Computing for Social Good

Student Mentorship

- Undergraduate students: Eytan Biala, Praveen Chekuri, Georgiana Haldeman (went on to grad. school), Daniel Lengyel ((went on to grad. school), Krishna Narni, and Aditya Sai.
- Graduate students: Jalal Abdulbaqi, Michael P Andersen, Ghassan Bati, Gabriel T. Fierro, Meghana Ghadge, Jack Kolb, Raul Solomon Lasluisa, Ana Echavarria Uribe.

PROFESSIONAL SERVICE

Program Committee Member	The First International Symposium on Cloud Computing and Services for High Performance Computing Systems (InterCloud-HPC 2019) as part of the 17 th International Conference on High Performance Computing & Simulation (HPCS 2019), Dublin, Ireland
Workshop Proceedings Vice Chair	The 32 nd IEEE International Parallel & Distributed Processing Symposium (IPDPS 2018), Vancouver, Canada
Program Committee Member	The First International Workshop on Workflow Science (WoWS 2017) in conjunction with the 13 th IEEE eScience Conference in Auckland, New Zealand
Student Volunteer	The 31 st IEEE International Parallel & Distributed Processing Symposium (IPDPS 2017), Orlando, FL, USA
Student Volunteer	The 28 th International Conference for High Performance Computing, Networking, Storage and Analysis (SC15), Austin, TX, USA
Student Volunteer	The 22 nd ACM International Symposium on High-Performance Parallel and Distributed Computing (HPDC13), New York, NY, USA
Student Volunteer	The 25 th International Conference for High Performance Computing, Networking, Storage and Analysis (SC12), Salt Lake City, UT, USA
Student Volunteer	The 24 th International Conference for High Performance Computing, Networking, Storage and Analysis (SC11), Seattle, WA, USA
Reviewer	Transactions on Parallel and Distributed Systems, Cluster Computing, and Future Generation Computer Systems

PROFESSIONAL AFFILIATION

2015 - Present	Association for Computing Machinery (ACM)
2012 - 2017	Society for Industrial and Applied Mathematics (SIAM)
2009 - Present	ETA KAPPA NU Electrical & Computer Engineering Honor Society
2005 - Present	Institute of Electrical and Electronics Engineers (IEEE)

STUDENT TRAVEL AWARDS

June 2017	the 26 th ACM International Symposium on High-Performance Parallel and Distributed Computing (HPDC17), Washington D.C., USA
June 2017	the 31 st IEEE International Parallel & Distributed Processing Symposium (IPDPS 2017), Orlando, FL, USA
May 2017	the 17 th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid 2017), Madrid, Spain
November 2015	the 28 th International Conference for High Performance Computing, Networking, Storage and Analysis (SC15), Austin, TX, USA
November 2012	the 25 th International Conference for High Performance Computing, Networking, Storage and Analysis (SC12), Salt Lake City, UT, USA
November 2011	the 24 th International Conference for High Performance Computing, Networking, Storage and Analysis (SC11), Seattle, WA, USA

CONTRIBUTION TO SOFTWARE PROJECTS & SCIENTIFIC APPLICATIONS

- o XBOS: an open-source large-scale distributed operating system for smart buildings.
- o WAVE: a decentralized authentication verification engine.
- o C-Ports: a framework for deploying Docker containers across multiple clouds and data centers.
- o CometCloud: An autonomic framework for enabling real-world applications on dynamically federated, hybrid infrastructure integrating (public & private) clouds, data-centers and grids.
- o Discover: a framework that enables geographically distributed scientists to collaboratively monitor, and control high performance parallel/distributed applications using web-based portals.
- o iCode: a framework that integrates CometCloud and Discover and leverages Deep Cloud to enable on-demand deployment and elastic abstractions on top of supercomputers (e.g., IBM Blue Gene).
- o Elvis: a Scientific Graphics for Visualization and Monitoring.
- o Medical Image Registration and Histopathology Image Analysis with Rutgers Cancer Institute
- o Kepler Scientific Workflow and Rapid Analysis of Multiple Metagenomes with a Clustering and Annotation Pipeline (RAMMCAP) with San Diego Supercomputer Center
- o Asynchronous Replica Exchange using IMPACT and AMBER with Rutgers CBMB
- o Implicit Parallel Accurate Reservoir Simulator (IPARS) and Ensemble Kalman Filter (EnKF) with University of Texas at Austin
- o Uncertainty-aware Resource Provisioning in Mobile Computing Grids for Real-time In-situ Data Processing
- o Designed and implemented a system to offload complex computation to IBM Blue Gene/P supercomputer from a MATLAB front-end running on a personal computer
- o Designed and implemented a real-time Value at Risk (VaR) simulation on a BlackBerry mobile device with Bloomberg LP

REFERENCES

David E. Culler (Postdoc Advisor)
Professor of Computer Science
Interim Dean for Data Sciences
University of California, Berkeley

Randy H. Katz
Distinguished Professor of Computer Science
Vice Chancellor for Research
University of California, Berkeley

Joseph M. Hellerstein
Professor of Computer Science
Co-Director, RISELab
University of California, Berkeley

Deborah Silver
Professor of Electrical and Computer Engineering
Executive Director, Professional Science Master's Program
Rutgers, The State University of New Jersey

Manish Parashar (PhD Advisor)
Distinguished Professor of Computer Science
Director, Rutgers Discovery Informatics Institute
Rutgers, The State University of New Jersey

Ion Stoica
Professor of Computer Science
Director, RISELab
University of California, Berkeley

Joseph Gonzalez
Assistant Professor of Computer Science
Co-Director, RISELab
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Malgorzata Steinder
IBM Fellow
Container Cloud Platform Research
IBM Thomas J. Watson Research Center