

Kaoutar El Maghraoui

CONTACT INFORMATION IBM Thomas J. Research Center Phone: 914-945-2112
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<https://www.linkedin.com/in/kaoutar-el-maghraoui/>
<http://researcher.watson.ibm.com/researcher/view.php?person=us-kelmaghr>

RESEARCH INTERESTS Cloud computing, Operating Systems, High-performance Computing, Distributed Systems, Data Analytics, Artificial Intelligence, Neural Architectural Search, and AI Hardware.

EDUCATION **Rensselaer Polytechnic Institute**, Troy, New York

Ph.D. in Computer Science awarded May 2007. GPA: 4.0/4.0

- Dissertation Title: *A Framework for the Dynamic Reconfiguration of Scientific Applications in Grid Environments*
- Advisor: Dr. Carlos Varela

Al Akhawayn University, Ifrane, Morocco

M.S., Computer Networks, May 2001. GPA: 3.98/4.0

- Dissertation Title: *Towards Building H.323-Aware Wireless Systems: H.323 Control Loops and Applications Adaptation to Wireless Link Conditions*
- Advisor: Dr. Tajje-eddine Rachidi

B.S., Software Engineering, December 1999. GPA: 4.0/4.0

- *Summa Cum Laude*

WORK

EXPERIENCE

Adjunct Professor, Columbia University, Fall 22 - present

Co-teaching with Dr. Parijat Dube the "the High Performance Machine Learning" Course.

Topics covered in this class: ML/DL and PyTorch basics, PyTorch performance. Performance optimization in Pytorch, Parallel performance modeling, Intro to CUDA and CUDA programming, Math libraries for ML (cuDNN), DNNs architectures (CNN, RNN, LSTM, Attention, Transformers) in Pytorch, Intro to MPI, Distributed ML, Distributed PyTorch algorithms, parallel data loading, and ring reduction, Quantization and model compression, hw/sw co-design and co-optimization of DNNs.

Principal Research Scientist, AI Platforms and Runtimes, AI Hardware Center, IBM Research AI, Yorktown Heights, New York, 05/19 - present

Principal investigator of IBM Research's AI hardware Center Technology Testbed. I lead a team that built a powerful and versatile infrastructure to support IBM AI Hardware Center accelerators. The AI hardware center is a global research hub to develop next-generation AI hardware and further accelerate the development of AI-optimized hardware innovations. The AI technology testbed hosts research and development, prototyping, testing, and simulation activities for new AI cores specially designed for training and inference for advanced AI models, and demonstrating Center innovations in real-world applications. This effort has had measurable impact in the form of payments to the AI Hardware Center and has also led to significant media coverage. I serve in the operational committee of the IBM/RPI supercomputer. I lead the development of the end-user experience for the software ecosystem for IBM's next generation hardware digital and analog accelerators.

Technical lead in the AI runtimes and platforms organization working on operationalizing AI workloads at scale.

Research Scientist, AI Engineering, IBM Research AI, Yorktown Heights, New York, 01/18 - 04/19

Focusing on innovation at the intersection of systems and machine learning. Design and building of scalable, elastic and resilient cloud-native platform for deep learning.

Research Scientist and GTO 2018 co-lead, IBM Research, Yorktown Heights, New York, 12/16 - 12/17

A one year assignment at the IBM Research strategy team co-leading IBM's Global Technology Outlook. Contributed to defining IBM's vision for the future of IT across global labs and business units focusing on IBM's AI leadership.

Research Staff Member, Scalable Systems Department, IBM T.J. Watson Research Center, Yorktown Heights, New York, 9/07 - 12/16

Technical lead and key contributor to the Watson4TSS project, a Watson technology based cognitive search system to assist call centers in resolving customer services requests. Leading research efforts focusing on applications of cognitive technologies (e.g.. IBM Watson Technology) to systems problem diagnosis and resolution.

Prior research focused on several aspects of the AIX operating system such as performance optimization, multi-thread and multi-core scheduling, Flash SSD storage, OS crash diagnosis and recovery, and interactions with IBM's POWER system architecture.

Research Assistant, Worldwide Computing Lab, Rensselaer Polytechnic Institute, Troy, New York, 9/02 - 5/07

Researched techniques to devise grid middleware services that enable distributed applications to adapt to the constantly changing behavior of dynamic environments. Reconfiguration is supported at the entity-level of applications for more flexible adaptation and is based on peer-to-peer protocols to achieve scalable decisions. I also contributed to the design and implementation of the Salsa programming language. This research involved:

- Design and implementation of reconfiguration strategies, application-level and resource-level profiling services. All have been implemented as part of the Internet Operating System (IOS) middleware.
- Design and implementation of the PCM library (Process Checkpointing and Migration), a library that extends iterative MPI applications with checkpointing, process migration, and split and merge capabilities. The PCM library has been integrated with IOS to enable automatic middleware-triggered reconfiguration for MPI applications in dynamic and heterogeneous environments.

I also contributed to the design and implementation of SALSA, a programming language based on the actor model of computation. SALSA follows actor semantics and enables the easy development of concurrent and transparently distributed applications.

Research Summer Intern, IBM T.J. Watson Research Center, The Internet Infrastructure and Computing Utilities group, Hawthorne, NY, USA, Summers of 2004 and 2005

Designed and implemented a prototype for the automatic generation of provisioning actions (workflows) in a data center. The approach relied on using the partial-order planning algorithm (POP) to infer the partial order of provisioning operations and their inputs to deploy a given application in a data center. Several heuristics were introduced to improve the performance of POP in the provisioning domain. The prototype has been integrated with IBM's Rainforest project and was capable of generating deployment plans that can be executed using IBM's Tivoli Intelligent Orchestrator provisioning manager.

Computer Science Lecturer, Al Akhawayn University, School of Science and Engineering, Ifrane, Morocco, 01/01-06/02

Taught Computer Networks, Assembly Language Programming, Programming with C, and Pascal Programming. Duties included teaching, preparing curriculum, class notes,

homework, and project assignments, and advising students.

Graduate Research Assistant, Al Akhawayn University, School of Science and Engineering, Ifrane, Morocco, 01/00-06/01

Designed and implemented an algorithm to optimize H.323 control loops for multimedia applications adaptation under wireless Link conditions. Sponsored by Lucent Technologies and Al Akhawayn University.

Teaching Assistant, Al Akhawayn University, School of Science and Engineering, Ifrane, Morocco, 01/97-06/99

Served as a teaching assistant for the following courses: Physics, Electrical Circuits, Assembly Language, Programming classes, and Data Structures. Duties included holding office hours, grading, and leading weekly lab sessions.

REFEREED
JOURNAL
PUBLICATIONS

1. Yu Deng, **Kaoutar El Maghraoui**, Thomas D Griffin, Vikas Agarwal, Srikanth G Tamilselvam, Rahul D Sharnagat, Tabari H Alexander, Nicolas E. Gomez, Christopher Cramer, Alan Bivens, Divyesh Jadav, Zaman M Valli-Hasham, Kevin Wahlmeier. *Advanced Search System for IT Support Services*. IBM Journal of Research and Development, Volume 61, Issue 1, 2017
2. Joefon Jann, R. Sarma Burugula, Ching-Farn E. Wu, **Kaoutar El Maghraoui**: *Towards an immortal operating system in virtual environments*. Parallel Computing 40(9): 526-535 (2014)
3. **Kaoutar El Maghraoui**, Travis J. Desell, Boleslaw K. Szymanski, Carlos A. Varela. *Malleable iterative MPI applications*. Concurr. Comput. Pract. Exp. 21(3): 393-413 (2009)
4. Travis J. Desell, **Kaoutar El Maghraoui**, Carlos A. Varela. *Malleable applications for scalable high performance computing*. Cluster Computing 10(3): 323-337 (2007)
5. **Kaoutar El Maghraoui**, Travis J. Desell, Boleslaw K. Szymanski, Carlos A. Varela: *The Internet Operating System: Middleware for Adaptive Distributed Computing*. IJHPCA 20(4): 467-480 (2006)

REFEREED
CONFERENCE
PUBLICATIONS

1. Hadjer Benmeziane, Hamza Ouarnoughi, Smail Niar, **Kaoutar El Maghraoui**, *CaW-NAS: Compression Aware Neural Architecture Search*, 25th Euromicro Conference on Digital System Design (DSD), 2022
2. Hadjer Benmeziane, Smail Niar, Hamza Ouarnoughi, **Kaoutar El Maghraoui**, *Pareto Rank Surrogate Model for Hardware-aware Neural Architecture Search*, IEEE ISPASS 2022
3. Hadjer Benmeziane, Hamza Ouarnoughi, **Kaoutar El Maghraoui**, Smail Niar: *Real-time style transfer with efficient vision transformers*. EdgeSys@EuroSys 2022: 31-36
4. Hadjer Benmeziane, Hamza Ouarnoughi, **Kaoutar El Maghraoui**, Smail Niar. *Accelerating Neural Architecture Search with Rank-Preserving Surrogate Models*. 7th International Conference on Arab Women in Computing (ArabWIC 21). **Best paper award**.
5. Hadjer Benmeziane, **Kaoutar El Maghraoui**, Hamza Ouarnoughi, Smail Niar, Martin Wistuba, Naigang Wang. *Hardware-Aware Neural Architecture Search: Survey and Taxonomy*. 30th International Joint Conference on Artificial Intelligence (IJCAI-21)

6. Malte J. Rasch, Diego Moreda, Tayfun Gokmen, Manuel Le Gallo, Fabio Carta, Cindy Goldberg, **Kaoutar El Maghraoui**, Abu Sebastian, Vijay Narayanan. *A Flexible and Fast PyTorch Toolkit for Simulating Training and Inference on Analog Crossbar Arrays*. IEEE International Conference on Artificial Intelligence Circuits and Systems, 2021
7. Lorraine Herger, **Kaoutar El Maghraoui**, I-Hsin Chung, Chekuri Choudary, Kim Tran, Todd Deshane. *Toward an Enterprise-ready Composable Infrastructure as a Service*. IEEE International Conference on Services Computing (SCC 2021)
8. **Kaoutar El Maghraoui**, Lorraine Herger, Chekuri Choudary, Kim Tran, Todd Deshane. *Performance Analysis of Deep Learning Workloads on a Composable System*. 2021 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW)
9. Xiao Sun, Naigang Wang, Chia-Yu Chen, Jiamin Ni, Ankur Agrawal, Xiaodong Cui, Swagath Venkataramani, **Kaoutar El Maghraoui**, Vijayalakshmi Srinivasan, Kailash Gopalakrishnan. *Ultra-Low Precision 4-bit Training of Deep Neural Networks*. Advances in Neural Information Processing Systems (NeurIPS), 2020
10. Waldemar Hummer, Vinod Muthusamy, Thomas Rausch, Parijat Dube, **Kaoutar El Maghraoui**, Anupama Murthi, Punleuk Oum. *ModelOps: Cloud-Based Lifecycle Management for Reliable and Trusted AI*. 2019 IEEE International Conference on Cloud Engineering (IC2E), pp. 113-120
11. Scott Boag, Parijat Dube, **Kaoutar El Maghraoui**, Benjamin Herta, Waldemar Hummer, K. R. Jayaram, Rania Khalaf, Vinod Muthusamy, Michael Kalantar, Archit Verma. *Dependability in a Multi-tenant Multi-framework Deep Learning as-a-Service Platform*. DSN Workshops 2018: 43-46
12. Rongda Zhu, Yu Deng, Soumitra (Ronnie) Sarkar, **Kaoutar El Maghraoui**, Harigovind V Ramasamy, and Alan Bivens. *Towards More Effective Solution Retrieval in IT Support Services Using Systems Log*. ICSOC 2016: 730-744, The 14th International Conference on Service Oriented Computing, 2016
13. Hyeran Jeon, **Kaoutar El Maghraoui**, Gokul B. Kandiraju. *Investigating hybrid SSD FTL schemes for Hadoop workloads*. Conf. Computing Frontiers 2013: 20:1-20:10
14. Gokul B. Kandiraju, **Kaoutar El Maghraoui**. *A flexible OS-based approach for characterizing solid-state disk endurance*. Conf. Computing Frontiers 2012: 223-232
15. Justin R. Funston, **Kaoutar El Maghraoui**, Joefon Jann, Pratap Pattnaik, Alexandra Fedorova. *An SMT-Selection Metric to Improve Multithreaded Applications' Performance*. IPDPS 2012: 1388-1399
16. Joefon Jann, R. Sarma Burugula, Ching-Farn E. Wu, **Kaoutar El Maghraoui**. *An OS-Hypervisor Infrastructure for Automated OS Crash Diagnosis and Recovery in a Virtualized Environment*. SBAC-PAD 2012: 195-202
17. David Daly, Parijat Dube, **Kaoutar El Maghraoui**, Dan E. Poff, Li Zhang. *A Hybrid Approach for Large Cache Performance Studies*. QEST 2011: 47-56
18. **Kaoutar El Maghraoui**, Gokul B. Kandiraju, Joefon Jann, Pratap Pattnaik. *Modeling and simulating flash based solid-state disks for operating systems*. WOSP/SIPEW 2010: 15-26

19. **Kaoutar El Maghraoui**, Travis J. Desell, Boleslaw K. Szymanski, Carlos A. Varela. *Malleable iterative MPI applications*. *Concurrency and Computation: Practice and Experience* 21(3): 393-413 (2009)
20. **Kaoutar El Maghraoui**, Travis J. Desell, Boleslaw K. Szymanski, Carlos A. Varela. *Dynamic Malleability in Iterative MPI Applications*. *CCGRID 2007*: 591-598
21. Wei-Jen Wang, **Kaoutar El Maghraoui**, John Cummings, Jim Napolitano, Boleslaw K. Szymanski, Carlos A. Varela. *A Middleware Framework for Maximum Likelihood Evaluation over Dynamic Grids*. *e-Science 2006*: 105
22. **Kaoutar El Maghraoui**, Alok Meghranjani, Tamar Eilam, Michael H. Kalantar, Alexander V. Konstantinou. *Model Driven Provisioning: Bridging the Gap Between Declarative Object Models and Procedural Provisioning Tools*. *Middleware 2006*: 404-423
23. **Kaoutar El Maghraoui**, Boleslaw K. Szymanski, Carlos A. Varela. *An Architecture for Reconfigurable Iterative MPI Applications in Dynamic Environments*. *PPAM 2005*: 258-271
24. Travis J. Desell, **Kaoutar El Maghraoui**, Carlos A. Varela. *Load Balancing of Autonomous Actors over Dynamic Networks*. *HICSS 2004*
25. **Kaoutar El Maghraoui**, Travis J. Desell, Boleslaw K. Szymanski, James D. Teresco, Carlos A. Varela. *Towards a middleware framework for dynamically reconfigurable scientific computing*. *High Performance Computing Workshop 2004*: 275-301
26. **Kaoutar El Maghraoui**, Joseph E. Flaherty, Boleslaw K. Szymanski, James D. Teresco, Carlos A. Varela. *Adaptive Computation over Dynamic and Heterogeneous Networks*. *PPAM 2003*: 1083-1090

EDITORSHIP

1. Ozcan Ozturk, Sabri Pillana, Smaïl Niar, **Kaoutar El Maghraoui**: Special issue on recent advances in autonomous vehicle solutions in the digital continuum. *Computing* 104(3): 459-460 (2022)
2. Manar Abu Talib, Laila Benhlima, **Kaoutar El Maghraoui**: ArabWIC 2021: The 7th Annual International Conference on Arab Women in Computing in Conjunction with the 2nd Forum of Women in Research, Sharjah, United Arab Emirates, August 25 - 26, 2021. *ACM 2021*, ISBN 978-1-4503-8418-6
3. **Kaoutar El Maghraoui**, Dalila Chiadmi, Laila Benhlima, Nariman Ammar: *Proceedings of the 6th Annual International Conference on Arab Women in Computing, ArabWIC 2019, Research Track, Rabat, Morocco, March 7-9, 2019*. *ACM 2019*, ISBN 978-1-4503-6089-0
4. Peter Desnoyers, **Kaoutar El Maghraoui**: *4th Workshop on Interactions of NVM/Flash with Operating Systems and Workloads, INFLOW@OSDI 2016, Savannah, GA, USA, November 1, 2016*. *USENIX Association 2016*
5. **Kaoutar El Maghraoui**, Gokul B. Kandiraju: *2nd Workshop on Interactions of NVM/Flash with Operating Systems and Workloads, INFLOW '14, Broomfield, CO, USA, October 5, 2014*. *USENIX Association*
6. **Kaoutar El Maghraoui**, Gokul B. Kandiraju: *Proceedings of the 1st Workshop on Interactions of NVM/FLASH with Operating Systems and Workloads, INFLOW 2013, Farmington, Pennsylvania, USA, November 3, 2013*. *ACM 2013*, ISBN 978-1-4503-2462-5

PATENTS

1. Generation And Management Of An Artificial Intelligence (ai) Model Documentation Throughout Its Life Cycle, February 28, 2022 - United States of America, 11263188.
2. Software Patch Management Incorporating Sentiment Analysis, August 2, 2021 - United States of America, 11080037
3. System, Method And Computer Program Product For Instantiating Blocks Of A Solid-state Disk To Include Different Flash Characteristics, May 4, 2020 - United States of America, 10642497
4. Log-aided Automatic Query Expansion Approach Based On Topic Modeling, April 20, 2020 - United States of America, 10628467
5. Dynamic Faceted Search, March 25, 2019 - United States of America, 10242103
6. Actively Controlled Performance Clothing, March 4, 2019 - United States of America, 10219556
7. Software Patch Management Incorporating Sentiment Analysis, October 29, 2018 - United States of America, 10114632
8. Automated Diagnosis Of Software Crashes, August 20, 2018 - United States of America, 10055274
9. Software Patch Management Incorporating Sentiment Analysis, August 6, 2018 - United States of America, 10042625
10. Log-aided Automatic Query Expansion Approach Based On Topic Modeling, March 12, 2018 - United States of America, 9916377
11. Automated Diagnosis Of Software Crashes, September 5, 2016 - United States of America, 9436540
12. Dynamic Tuning Of Internal Parameters For Solid-state Disk Based On Workload Access Patterns, January 25, 2016 - United States of America, 9244831
13. Dynamic Tuning Of Internal Parameters For Solid-state Disk Based On Workload Access Patterns, August 4, 2015 - United States of America, 9098400
14. Automated Transition To A Recovery Kernel Via Firmware-assisted-dump Flows Providing Automated Operating System Diagnosis And Repair, March 6, 2012 - United States of America, 8132057

PROFESSIONAL AWARDS

- 2022 IBM Technical Corporate Award. Thirty eight IBM researchers received this distinguished recognition honoring outstanding technical accomplishments that contribute significant business value to IBM and our clients.
- 2021 IEEE Technical Committee on Services Computing (TCSVC) Women in Service Computing Award. This Award recognizes women leaders who have demonstrated long-standing, sustained, and impactful contributions to Service Computing practice and/or research, providing a female role model for young women pursuing a career in Services Computing.
- IBM Honoree for 2021/ Best of IBM, one of the highest recognition given by IBM to its top performers.
- IBM Outstanding Innovation Award: "AI Hardware Center Testbed: End-to-End Client Enablement and Research Demonstrations on Next-gen AI Hardware"
- Named one of the 10 African Women Role Models by AfChix, a vibrant network of African women in computer science, IT, and related technologies. <http://www.afchix.org/role-models/>

- IBM Manager’s Choice Award for demonstrating the practice: Share expertise, May, 2019
- IBM Manager’s Choice Award for demonstrating the practice: Restlessly reinvent – our company and ourselves, April, 2019
- IBM Manager’s Choice Award for demonstrating the practice: Unite to get it done now, August, 2018
- IBM Manager’s Choice Award for demonstrating the practice: Share expertise, May, 2017
- IBM’s Outstanding Technical Achievement Award for technical contributions to Cognitive Virtual Technical Assist, 2017
- IBM’s Outstanding Technical Achievement Award for key contributions to Watson4TSS, a Watson technology based cognitive search system to assist call centers in resolving customer service requests as well as improving IBM’s client experience, 2015
- IBM Manager’s Choice Award for demonstrating the practice: Show Personal Interest, November, 2014
- IBM Manager’s Choice Award for demonstrating the practice: Unite to Get it Done Now, June, 2014
- IBM Research Eminence and Excellence award for leadership in increasing Women presence in science and technology, 2013
- IBM’s Tier II award for contributions to the foundational POWER software technologies and promoting these systems in Africa, 2012

ACADEMIC AWARDS

- The Robert McNaughton Prize for best thesis research in Computer Science, Rensselaer Polytechnic Institute, 2007
- NSF scholarship to participate in the Grace Hopper Celebration of Women in Computing conference, October, 2006.
- RPI Computer Science Student Service Award, 2005.
- RPI scholarship to participate in the Grace Hopper Celebration of Women in Computing conference, October 8th, 2004.
- American Association of University Women fellowship for the academic year 02/03
- President List: Al Akhawayn University (10 Semesters)
- First Place: First Arab-African ACM Collegiate Programming Contest, 11/98; Al Akhawayn University
- Highest High School Score, 6/95, Academy of Settlat.

PUBLIC TALKS AND PANELS

- Invited speaker, Women in Data Science (WiDS), Paris, ”The Quest for Sustainable AI”, June 18, 2022.
- Tutorial speaker, ACM SIGSIM PADS (Principals of Advanced Discrete Simulation), ”Introduction To AIHWKIT, A Simulation Platform For Next Generation Analog AI Hardware Acceleration”, June 8, 2022.
- Invited speaker, CHEOPS Workshop at EuroSys 2022, Workshop on Challenges and Opportunities of Efficient and Performing Storage Systems, ”AI Hardware Accelerators and Composable Infrastructure”, April 5, 2022.
- keynote speaker, NISS 2022, Envisage Intelligent Systems in 5G/6G-based Interconnected Digital Worlds, ”Hardware-Software Co-Design Approaches for Sustainable AI”, Mar 30, 2022.
- keynote speaker, MoroccoAI conference, ”Powering the Future of AI through Specialized AI Hardware Accelerators”, December 23, 2021.
- Panelist, ”Innovation and Bridging the Gap Between AI Research and Industry”, MoroccoAI conference, December 21, 2021.
- ICSSD 2021 keynote talk, ”Accelerating, Optimizing and Automating AI across the Stack”, October 29, 2021.
- ACM Middleware 2021 tutorial, ”Middleware and Toolkit for Next Generation Analog

- AI Hardware Acceleration”, December 6, 2021.
- Invited Talk. Hardware-aware Automated AI for Efficient Deep Learning across Hybrid Deployments: Current Landscape and Future Directions. Second Forum for Women in Research August 2021, University of Sharjah, UAE
 - ICML 2021 Expo talk. IBM Analog AI Hardware Acceleration Kit. Kaoutar El Maghraoui & Malte J Rasch, July 18th, 2021
 - Keynote speaker at the 1st edition of the Intercultural Management Conference Series hosted by Hassan II University in Casablanca. April 27, 2021
 - Invited Talk at IEEE FastPath workshop. Hardware-aware Automated AI for Efficient Deep Learning across Hybrid Deployments: Current Landscape and Future Directions. Mar 29, 2021.
 - IEEE ENSIAS student branch Panel: Moroccan Women in Tech. March 7th, 2021
 - Invited talk at Alakhawayn University. KEY RESEARCH TRENDS SHAPING THE FUTURE OF AI. February 26, 2021
 - ENSEM Engineering Invited Talk. Where we are heading next with AI. January 29th, 2021.
 - Keynote speaker, ”Harnessing the Power of AI in E-commerce: Challenges and Opportunities”, the 2020 Forum on E-Commerce and Cybersecurity, FEC 2020, November 23, 2020.
 - Invited talk, ”Raising awareness about inclusivity at the workplace”, Women in High Performmce Computing Workshop at SC2020, 11, Nov, 2020.
 - Panel speaker, ”The voices of Moms in Tech during COVID-19,” Afchix Webinar, 22 July 2020.
 - Panel speaker, ”I’d blush if I could: How can we ensure an inclusive digital transformation process”, Rakameya Conference, 29 June 2020.
 - Keynote speaker, ”Recent Advances in AI: Implications on the City of the Future”, 2nd International Workshop on Innovative Smart City Technologies, Casablanca, Morocco, June 19, 2020. [Talk Link](#)
 - Invited speaker, ”AI and the Race Against COVID-19”, Webinar on Artificial Intelligence and Machine Learning Application on Covid’19, Hassan II university in Casablanca, May 22, 2020. [Talk Link](#).
 - ”IBM Accelerated Discovery for COVID-19”, Invited Talk, 9th Annual NYUAD Hackathon for Social Good in the Arab World, April 16th, 2020.
 - Invited Talk, ”Now and the Future of Accelerating AI, a view from IBM Research”, Women in Data Science Conference, New York City, March 23, 2020. [Talk Link \(1:54:50\)](#)
 - Panel: ”The Golden Age for Computer Architecture: Challenges and Pitfalls”, FOCA 2019, 4th workshop on the future of computing architectures, October 23, 2019, IBM T.J. Watson Research Center, NY.
 - ”Challenges of adopting, operationalizing and scaling AI in the real world”, Rensselaer Polytechnic Institute Research Seminar, October 23rd, 2019, RPI, NY.
 - ”Beyond the AI Hype A Discussion with Tom Taulli”, Panel Discussion on the Practical Applications of AI, Oct 9th, 2019, LMHQ, New York City.
 - ”Operationalizing Artificial intelligence with Trust and Transparency”, AI Akhawayn University Business School Seminar, July 10, 2019
 - ”Now and the Future of Accelerating AI, a view from IBM Research”, IBM Technical University, Dubai, 15 ? 18 April 2019 — Dubai, UAE
 - ”Operationalizing and Scaling AI”, Women in Data Science and Quantum Computing, New York City, March 25, 2019
 - ”Engineering Artificial Intelligence for the Future”, Featured Technical Research Keynote, ArabWIC 6th International Conference on Women in Computing, Rabat, Morocco, March 8, 2019
 - ”AI Engineering: Foundations to Operationalize and Scale AI”, Women In Data Science (WiDS) Keynote, Rabat, Morocco, March 9, 2019

- "Trust and Transparency in AI", Invited Talk, ENSIAS (National School of Computer Science), Rabat, Morocco, March 6th, 2019
- "Research Innovations at the Intersection of AI and Systems", Invited Talk, Rensselaer Polytechnic Institute, October 15th, 2018
- "IBM AI Hardware Research Enables ML/DL Collaboration using POWER9 GPU Nodes, IBM Cloud Private and Watson Studio Local", Super Computing, November 11-16, 2018, Dallas, TX
- "IBM AI Hardware Research Enables ML/DL Collaboration using POWER9 GPU Nodes, IBM Cloud Private and Watson Studio Local", 2018 IBM Systems Technical University, October 18th, 2018, Hollywood, FL
- Invited Talk: "AI is Everywhere: Headlights into the Future and Existing Challenges", Women in Data Science Conference, WiDS Riyadh, King Abdulaziz City for Science and Technology *KACST*, March 5th, 2018
- Keynote: "AI is Everywhere: Headlights into the Future and Existing Challenges", Tech Saudiya, Princess Nourah bint Abdulrahman University *PNU*, March 7th, 2018
- "Why and How to Prepare for Hackathons", Grace Hopper Celebration of Women in Computing Conference, October, 2017
- "IBM Research's Cutting-edge Innovations transforming Industries and Society", 5th Annual International conference on Arab Women in Computing, August, 2017
- "Blockchain: What's All The Fuss About?", Technology Workshop, 5th Annual International conference on Arab Women in Computing, August, 2017
- "Women in Technology Panel", ClojureBridge MIT Programming Workshop, October, 2016
- Keynote: "A Journey of Research Innovations and Lesson Learned" 2015 NYUAD Women in Computing in the Arab World Conference, Abu Dhabi, UAE.
- "Latest Trends and Technical Challenges in Big Data, Analytics and the Cloud: Perspectives from Industry and Academia" Panel, NYCWiC 2015, New York Celebration of Women in Computing, Syracuse, NY, 2015.
- "Why Women in Technology should patent their ideas" Panel, Grace Hopper Celebration of Women in Computing Conference, 2014.
- "Latest Trends and Technical Challenges of Big Data Analytic" Panel, Grace Hopper Celebration of Women in Computing Conference, 2014.
- "Big Data, Analytics and Cloud Computing: the New Paradigm". Panel, New York Celebration of Women in Computing (NYCWIC), 2013, Albany, NY.
- "What if Social Networks Can Empower Women in Science, Technology, and Beyond?" Panel, Grace Hopper Celebration of Women in Computing, 2011, Portland, Oregon.
- "Minority Women: Diversity and Mentoring in the Research Environment" Panel, SWE 2011, The Annual Conference of Women Engineers, Chicago, Illinois.
- "10 Things I Wish I Knew Before I Started My Career" Panel, Grace Hopper Celebration of Women in Computing, 2010, Atlanta, Georgia.
- "Internship Programs Showcase - Success Stories (How to Make the Best of Internship Programs, a 360 View)" Panel, Grace Hopper Celebration of Women in Computing, 2008, Keystone, Colorado.
- The Internet Operating System: Middleware for Adaptive Distributed Computing. Center for Pervasive Computing and Networking, RPI, Troy, NY, December 6th, 2006.
- A Framework for the Dynamic Reconfiguration of Scientific Applications in Grid Environments. Ph.D. Forum, Grace Hopper Celebration of Women in Computing (GHC06), San Diego, CA, October 2006.
- An Architecture for Reconfiguring Iterative MPI Applications in Dynamic and Heterogeneous Environments. SIAM Conference on Parallel Processing for Scientific Computing (PP06), San Francisco, CA, February 2006.

CONFERENCE
ORGANIZATION

- AI Track co-chair, Grace Hopper Conference, 2022
- General chair, IEEE International Symposium on Women in Services Computing, 2022
- Program co-chair, IPDPS Scalable Deep Learning Workshop 2022 (ScaDL 2022)
- Guest Editor, Computing Journal, Special Issue on "Recent Advances in Autonomous Vehicle Solutions in the Digital Continuum". 2021
- Program chair, IBM CAS/EDS AI Compute Symposium, 2021
- Program chair, IEEE International Symposium on Women in Services Computing, 2021
- General chair, ArabWIC 7th International Conference of Arab Women in Computing, 2021
- Track Co-Chair, Grace Hopper Conference, Emerging Technologies Track 2021
- Program chair, IEEE International Symposium on Women in Services Computing, 2020
- Grace Hopper Conference, Emerging Technologies Track Co-chair, 2020
- Grace Hopper Conference, Emerging Technologies Track Co-chair, 2019
- Invited Talks Chair, Women in HPC Workshop, Super Computing Conference, 2019
- General Chair, ArabWIC'19 conference
- Research Track Chair, ArabWIC'17 conference
- Publicity Chair, WOPSSS 2016-2019 (Workshop on Performance Scalability of Storage systems)
- Program Co-Chair, INFLOW'16, co-located with OSDI'16
- Program Co-Chair of Grace Hopper 2015
- Industrial Co-Chair of Grace Hopper 2014 Careers Track
- Program Co-Chair, INFLOW'14, 2nd workshop of Interactions of NVM/Flash with Operating-Systems and Workloads. Co-located with with OSDI'14
- Finance Chair, PPOPP'14, the 19th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming.
- Program Co-Chair, INFLOW'13, SOSP 2013 1st workshop of Interactions of NVM/Flash with Operating-Systems and Workloads. Industrial Co-Chair of Grace Hopper 2013 Posters Session.
- Publications Chair of the 24th International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD 2012).
- Associate Vice Program Chair of The 9TH ACS/IEEE International Conference on Computer Systems and Applications (AICCSA) 2011.
- Publications Chair of the Partitionable Global Address Space conference (PGAS) 2010.

Technical Program Committee Member

- 2021: ScaDL 21, IPDPS
- 2020: HPCA-26 Industry Track
- 2019, Super Computing, HPCA-26 Industry Track, MASCOTS 2019, ISCA 2019
- 2018, GHC, ACM SRC
- 2017, ACM SRC, Cloud Computing 2017, and CCGrid 2017
- 2016, ACM SRC, Cloud Computing 2016, Tapia
- 2015: Super Computing (SC) 2015, CADS 2015, Cloud Computing 2015, NPC 2016, and ACM SRC 2015.
- 2014: Cloud Computing 2014, NPC 2014, and ACM SRC 2014.
- 2013: UCC 2013, The 6th IEEE/ACM International Conference on Utility and Cloud Computing.
- 2012: CCGRID2011, The 11th IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing, GHC PhD Forum, and UCC 2012.
- 2011: CCGRID2011, The 11th IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing.

PROFESSIONAL SERVICE AND ACTIVITIES Secretary-Treasurer for ACM SIGOPS, July 2015- July 2019 Global Vice Chair of the Arab Women Computing organization, 2013 - present
Co-chair of IBM Research Watson Women's Network, 2019 - 2020
ACM-W Scholarship committee member, 2013 - 2019
Co-Chair of OSPIC, the OS Professional Interest Community at IBM Research, 2014 - 2018

PROFESSIONAL SOCIETIES IEEE, ACM, ACM-W, Anita Borg Institute Systems, SWE, WITI, ArabWIC

REFERENCES Available Upon Request