SAMAR ASEERI

PROFESSIONAL SUMMARY

Dedicated Computational Scientist with experience in achieving tangible results and cross-team collaboration. Proactive and excited to partner with like-minded individuals to achieve goals.

EXPERIENCE

COMPUTATIONAL SCIENTIST 10/2010 to Current
King Abdullah University of Science and Technology, Saudi Arabia, Thuwal

- Before joining KAUST, she was trained in supercomputing at IBM's Thomas J Watson Research Center in Yorktown Heights, NY
- She provided support to the Shaheen user community at the KAUST Supercomputing Laboratory (KSL) and is currently focusing on research at KAUST's Extreme Computing Research Center (ECRC).

CORE QUALIFICATIONS

- Knowledge of: FFT library packages (2dcomp&fft, FFTE, FFTK), OpenFOAM CFD software and performance tools such as Scalasca, TAU, Extrae. Python, Fortran and C programming languages and linux/unix commands. OpenMPI and OpenMP parallelization libraries, Visualization Tools (Paraview and Visit). Experiance with HPC platforms CPU, GPU, ARM and AMD. Numerical methods for solving PDE's such FVM and Spectral Method.

- Communication skills: I have prepared and delivered outreach presentations to engage people in high-performance computing, such as WEP lectures and KAUST SC'22 booth talk, and contributed to the KAUST Open Research Week 2021 with a lecture about a tool on Shaheen II. I also write blog articles about venues I have organized.

- Research Management: I have led initiatives to form HPC communities for FFT in the Exascale era and for benchmarking in the data center. I have also managed research endeavors starting from an idea, proposing collaborators, distributing tasks and writing and submitting papers.

EDUCATION

Umm Al-Qura University, Makkah, Saudi Arabia
Bachelor, Master and Ph.D, Applied Mathematics, 2009
- Member of SIAM, ACM and IEEE

ACCOMPLISHMENTS

- WEBSITES
  http://www.fft.report/index.html,
  https://parallel.computer,
  http://parallelbenchmark.com/

- SIAM BLOGS
  https://sinews.siam.org/About-the-Author/samar-aseeri

INTERESTS

I am interested in the broad area of high-performance computing. My current research interests are Fast Fourier Transform (FFT) library algorithms, benchmarks and its implementations; Scalable Performance Tools; Parallel Hardware Benchmarking; and application performance analysis.

CONFERENCES AND VENUE OUTREACH

- HPBench Special Session at HPCS conference. Began with its organization in 2014, 2015.
- HPCS 2020, Virtual - Run HPBench Special Session
- HPCS 2019, Dublin - Run HPBench Special Session
- HPCS 2018, Orleans - Run HPBench Special Session
- HPCS 2017, Genoa - Run HPBench Special Session
- HPCS 2016, Innsbruck - Run HPBench Special Session
- HPC Asia 2021, Virtual - Present a paper
- HPC Asia 2019, Guangzhou - Chair a Workshop
- HiPC 2018, Bengaluru - Chair a Workshop
- IXPUG Middle East Conference 2018, KAUST - Present a lightning talk
- 2nd Quantum Economy Workshop 2024, Riyadh (KACST) – Remote attendance
- HPC Saudi 2022, Dammam (IAU) – Remote attendance
- HPC Saudi 2018, Jeddah (KAU) – Attend
- HPC Saudi 2014, Khobar – Attend a conference
- HPC Saudi 2013, Khobar – Attend
- SC'23, Denver – Help with KAUST Booth and attend the technical program
- SC'22, Dallas - Give a KAUST Booth talk and to attend
- SC'21, St. Louis – Give a remote talk to a WS now on YouTube at SC Conference Series
- SC'20, Virtual Event – Remote attendance
- SC 2019, Denver – Help with the KAUST Booth and attend
- SC 2018, Dallas - Present a lightning talk and help in KAUST Booth
- SC 2017, Denver - Run a BoF and help in the KAUST booth
- SC 2011, Seattle – Help with the KAUST Booth and attend
- ISC'24, Hamburg - Attend
- ISC'23, Hamburg - Attend
- ISC'22, Hamburg – Attend
- ISC'21, Hamburg - Attend
- ISC'20, Virtual Event – Remote attendance
- ISC 2019, Frankfurt - Attend
- ISC 2018, Frankfurt - Run a BoF
- ISC 2017, Frankfort – Attend
- ISC 2016, Frankfort - Attend
- ICPE 2024, Virtual – WS Organization
- PPoPP 2023, Virtual – WS Organization
- PPoPP 2022, Virtual - Chair a workshop
- PPoPP 2021, Virtual - Chair a workshop
- PPoPP 2020, San Diego - Chair a Workshop
- SIAM Parallel Processing 2024, Baltimore – Mini-symposium organization and give a talk

- SIAM CSE 2023, Netherlands – Mini-symposium organization and give a talk
- SIAM Parallel Processing 2022, Virtual - Mini-symposium
- SIAM CSE 2021, Virtual - Organize a one-part mini-symposium and give a talk
- SIAM Parallel Processing 2020 Seattle - Organize a two-part mini-symposium and give a talk
- SIAM CSE 2019, Spokane - Organize a two-part mini-symposium and give a talk and present a poster
- SIAM PP 2018, Tokyo - Organize a mini-symposium and give a presentation
- 15th International Parallel Tools Workshop 2024, Dresden – Present a paper
- DD'28, 2024, KAUST – Present a Poster
- CUG 2021, Virtual - Run a BoF
- CUG 2019, Montreal - Attend
- Birds of Feather at CUG 2021 (Virtual)
- ICPE 2019 Mumbai - Paper presentation
- BenchCouncil 2019, Denver - Present a paper and help in KAUST Booth
- SpringSim 2015, Alexandria (Virginia) - Present a paper
- M3HPCST 2015, Ghaziabad - Give an invited talk

CERTIFICATION

- Chair of HPBench special session at IEEE HPCS conference from 2014 to 2020
- PC member for Project Poster at ISC19
- PC member for Posters at WHPC Summit20
- PC member for ESPM2 Workshop at SC'20, SC'21 and SC'22
- PC member for ISC'24 BoF sessions
- PC member for HiPC'24 for Scalable Systems and Software (Data Science) track
- Hosted guests of KAUST-ECRC and KAUST-PSE in 2018 and 2019
- Mentored Liem Radita Tapaning Hestl for Women in HPC workshop at ISC 2017
- Co-mentored a High School student for the SRSI program at KAUST
- Contributed to the KVL two-day workshop: HPC Visualization with ParaView, Apr 23-24, 2014
- Composed a scientific flyer for KSL users
- Helped broadcasting many XSEDE hands-on workshops to KSL users 2013 – 2015
- Honorary recognition at first Saudi website: https://www.first1saudi.net/9016.html
- Attended training courses in Germany on Cray XC30, OpenFOAM programming, and VI-HPS tuning workshop. Also attended the PRACE training course at BSC in Barcelona in 2014. Additionally, participated in two OpenFOAM Workshops: one in Washington DC in 2010 and the 8th OpenFOAM Workshop in Jeju, Korea in 2013. Moreover, I attended the 7th OpenFOAM Workshop at the Technical University of Darmstadt in 2012, where I had an accepted abstract addressing OpenFOAM performance analysis on Shaheen BG/P.
- Visited HPC centers including Barcelona Supercomputing Center, Jülich Research Center, and UCSD Supercomputer Center
- Experience in Shaheen I and Shaheen II, Neser and Noor at KAUST, Stampede at TACC, Mira at ANL, K computer at RIKEN, SANAM at KACST, Titan at ORNL, Gordon at SDSC, Juqueen and Juropa at Juelich Supercomputing Center, and Swan at the Holland Computing Center
- Currently have access to Ibex at KAUST, Fugaku at RIKEN, Jureca at JSC, and Isambard ARM in Bristol
- Organized about 18 technical meetings

- Research Papers
  - Nuriyev, E., Manumachu, R. R., Aseeri, S. A., Verma, M. K., Lastovetsky, A. L. (2023). SUARA: A Scalable Universal Allreduce Communication Algorithm for Acceleration of

Parallel Deep Learning Applications, Journal of Parallel and Distributed Computing, 104767, ISSN 0743-7315, DOI: https://doi.org/10.1016/j.jpdc.2023.104767.

- Rogowski, M., Aseeri, S. A., Keyes, D. E., & Dalcin, L. (2022). MPI4py.futures: MPI-based asynchronous task execution for Python. IEEE Transactions on Parallel and Distributed Systems, 1-12. DOI: https://doi.org/10.1109/tpds.2022.3225481
- Leu, B., Aseeri, S., & Muite, B. (2021, January). A Comparison of Parallel Profiling Tools for Programs utilizing the FFT. In Proceedings of the IXPUG'21 Workshop at HPCAsia'21.DOI: http://dx.doi.org/10.1145/3440722.3440881.
- Aseeri, S., Chatterjee, A., Verma, M., & Keyes, D. (2021). A scheduling policy to improve 10% of communication time in parallel FFT. In Proceedings of CUG 2020. Concurrency and Computation: Practice and Experience (CCPE) (to appear). DOI: https://onlinelibrary.wiley.com/doi/10.1002/cpe.6508
- Muite, B. K., & Aseeri, S. (2020). Benchmarking solvers for the one-dimensional cubic nonlinear Klein Gordon equation on a single core. In W. Gao, J. Zhan, G. Fox, X. Lu, & D. Stanzione (Eds.), Bench 2019: Benchmarking, Measuring, and Optimizing (pp. 172-184). Springer. DOI: https://link.springer.com/chapter/10.1007/978-3-030-49556-5_18.
- Aseeri, S., & Muite, B. K. (2020). Benchmarking in the datacenter (BID) 2020: workshop summary. In Proceedings of the Workshop on Benchmarking in the Datacenter (BID '20) (Article 1). ACM. DOI: https://doi.org/10.1145/3380868.3398198.
- Aseeri, S., Muite, B. K., & Takahashi, D. (2019). Reproducibility in Benchmarking Parallel Fast Fourier Transform based Applications. In Companion of the 2019 ACM/SPEC International Conference on Performance Engineering - ICPE'19 (pp. 5-8). ACM. DOI: https://dl.acm.org/doi/10.1145/3302541.3313105.
- Aseeri, S., et al. (2015, April). Solving the Klein-Gordon equation using Fourier spectral methods: A benchmark test for computer performance. In Proceedings of the 23rd High Performance Computing Symposium (HPC 2015) (pp. 1-8). ACM.Rogowski, M., Aseeri, S. A., Keyes, D. E., & Dalcin, L. (2022). MPI4py.futures: MPI-based asynchronous task execution for Python. *IEEE Transactions on Parallel and Distributed Systems*, 1-12. DOI: https://dl.acm.org/doi/10.5555/2872599.2872622 .