HiPS2022 Keynote Speaker

Title: Bringing Serverless Computing to the HPC Community

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Abstract: The next wave of cloud computing — the serverless computing model — is enjoying adoption at scale by different cloud computing vendors. The serverless computing model is already rapidly accelerating the development and deployment of enterprise applications. Unfortunately, the HPC community appears to be left behind in the revolution. The widespread assumption or opinion is that the serverless computing model is not beneficial for the HPC community because the serverless computing model was not primarily designed for scientific computing and users.

In this talk, I promise to do three things. First, I'll show why existing popular opinion about HPC and serverless is pre-mature and inaccurate. Second, I'll demonstrate how HPC users and programmers can leverage the serverless computing model for mitigating some of the long-standing challenges and causes of frustration in HPC resource management. In the spirit of transparency, I admit that the path to effectively leveraging serverless for traditional HPC is challenging and has long stretches of darkness. I will identify and discuss some lamp posts on this not-so-well-lit path. Finally, I'll share my perspective on what new lampposts we should build as a community and where we should put them.

About the Speaker: Professor Devesh Tiwari is an educator and researcher at Northeastern University (Boston campus), where he directs the Goodwill Computing Lab. His group innovates new solutions to make large-scale classical computing systems and quantum computing systems more efficient, reliable, and cost-effective. Before joining the Northeastern faculty, Devesh was a staff scientist at the United States Department of Energy (DOE) Oak Ridge National Laboratory.

For his teaching and mentoring contributions, he was awarded the Professor of the Year by the Northeastern University chapter of the IEEE Eta Kappa Nu honor society. His research group, led by his excellent PhD students, has lowered the barrier to entry and accelerated the R&D efforts in multiple emerging computer systems areas including serverless computing, quantum system software, and AI-driven data center optimizations, via open-sourcing novel software artifacts and datasets. He has introduced several novel peer-review elements in the computer systems community in his role as the program co-chair/track co-chair for ICDCS, IISWC, IPDPS, and ICCD. Most recently, he was the Technical Program Committee Co-Chair for HPDC'22 and is slated to be the overall Technical Program Committee Co-Chair for IPDPS'23. He was recognized with the TPDS Editorial Excellence Award for his exceptional contributions to the TPDS journal as an editor.