



Halmstad Colloquium talk 2013-08-20:

Professor Gul Agha on

“The Actor Model: Foundations, Languages and Open Problems”

Abstract:

Actors naturally extend the concept of objects to concurrent computation. Actor programming has seen renewed interest with the growth of multicore computers, sensor networks, web services, and cloud computing. Actor languages and frameworks in current use include Erlang, E Language, Scala/Akka, Ptolemy, SALSA, Charm++, ActorFoundry, Asynchronous Agents Library and Orleans. Some well-known applications built using actors include Twitter's message queuing system, Lift Web Framework, Facebook chat and Vendetta's game engine. The presentation will formally define the Actor model and discuss its advantages: enforcing modularity and provide flexibility in scheduling, placement, and mobility. I will then summarize progress in methods to facilitate reasoning about actor programs and discuss issues in efficiently implementing actor systems. Finally, I will describe some challenges in building and maintaining large Actor systems.

About:

Gul Agha is Professor of Computer Science at the University of Illinois at Urbana-Champaign. His research is in the area of programming models and languages for open distributed and embedded computation. Dr. Agha is a Fellow of the Institute for Electrical Engineering and Electronics (IEEE). He is a recipient of the Naval Young Investigator Award from ONR, the IEEE Computer Society Meritorious Service Award, and the ACM Recognition of Service Award. He served as Editor-in-Chief of IEEE Concurrency: Parallel, Distributed and Mobile Computing (1994-98), and of ACM Computing Surveys (1999-2007). His book on Actors, published by MIT Press, is among the most widely cited works. He has published over 150 research articles and supervised over 20 PhD dissertations.