

Transformation to Parallel Programming - Computer Science Education in China

Hai Jin

Service Computing Technology and System Lab
Cluster and Grid Computing Lab
Huazhong University of Science and Technology
Wuhan, 430074, China
Emails: hjin@hust.edu.cn

Abstract— We are now in the transformation from the traditional programming environment to parallel programming environment due to the massive adoption of multi/many core architecture. These environments include not only homogeneous parallel processing environments, but also heterogeneous environments, such as CPU/GPU hybrid environments. Besides tightly coupled parallel processing environments such as HPC and cluster, massive data processing in loosely coupled environments using cloud computing has also become a hot topic in distributed processing. This puts great requirement to the computer science education on parallel programming for undergraduate and graduate students. But unfortunately, most universities in China still use traditional way in teaching undergraduate students various kinds of sequential programming languages. Although some top universities in China teach some kinds of parallel programming languages, such as MPI, to graduate students, only a few undergraduate students in China have formal course on parallel and distributed programming. Based on our more than 10 years teaching on parallel processing and programming to graduate students at Huazhong University of Science and Technology (HUST), we are now designing a syllabus for senior undergraduate students on parallel and distributed programming. In this talk, I will talk about our initial efforts in developing such syllabus for undergraduate education, combining basic parallel/distributed architecture background and different parallel/distributed processing paradigm suitable for various parallel processing architectures and for distributed processing environment such as cloud computing for massive data processing. Detailed layout of each part of this syllabus will also be introduced.

Biography: Hai Jin is a Cheung Kung Scholars Chair Professor of computer science and engineering at the Huazhong University of Science and Technology (HUST) in China. He is now Dean of the School of Computer Science and Technology at HUST. Jin received his PhD in computer engineering from HUST in 1994. In 1996, he was awarded a German Academic Exchange Service fellowship to visit the Technical University of Chemnitz in Germany. Jin worked at The University of Hong Kong between 1998 and 2000, and as a visiting scholar at the University of Southern California between 1999 and 2000. He was awarded Excellent Youth Award from the National Science Foundation of China in 2001. Jin is the chief scientist of ChinaGrid, the largest grid computing project in China, and the chief scientist of National 973 Basic Research Program Project of Virtualization Technology of Computing System. Jin is a senior member of the IEEE and a member of the ACM. Jin is the member of Grid Forum Steering Group (GFSG). He has co-authored 15 books and published over 400 research papers. His research interests include computer architecture, virtualization technology, cluster computing and grid computing, peer-to-peer computing, network storage, and network security. Jin is the steering committee chair of International Conference on Grid and Pervasive Computing (GPC), Asia-Pacific Services Computing Conference (APSCC), International Conference on Frontier of Computer Science and Technology (FCST), and Annual ChinaGrid Conference. Jin is a member of the steering committee of the IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGrid), the IFIP International Conference on Network and Parallel Computing (NPC), and the International Conference on Grid and Cooperative Computing (GCC), International Conference on Autonomic and Trusted Computing (ATC), International Conference on Ubiquitous Intelligence and Computing (UIC).