

Title: HAGGLE – Hybrid Attributed Generic Graph Library Environment

Abstract: Economic competitiveness and national security depend increasingly on the insightful analysis of large data sets. The diversity of the analytic workflow imposes challenging hardware and software requirements not met by traditional approaches. High-performance computer systems based on deep memory hierarchies and disjoint data spaces limit scalability of most memory intensive methods. Traditional table-based methods obscure complex patterns of activities in time and space, while pure graph platforms can not perform efficiently large join and select operations when appropriate. In this talk, I will describe HAGGLE, a hybrid, attributed, generic graph library environment that we are developing with the intent of executing at scale on diverse computing systems, and supporting both tables and graphs without preference. Our proposed platform comprises a hybrid data model, a hierarchical graph method library, extendible APIs, an abstract graph model for code transformations and optimizations, and an abstract runtime system.

Bio: Dr. John Feo is the Director of the Northwest Institute for Advanced Computing, a joint institute established by Pacific Northwest National Laboratory and University of Washington. Previously, he managed a large DOD research project in graph algorithms, search, parallel computing, and multithreaded architectures. Dr. Feo received his Ph.D. in Computer Science from The University of Texas at Austin. He began his career at Lawrence Livermore National Laboratory where he managed the Computer Science Group and was the principal investigator of the Sisal Language Project. Dr. Feo then joined Tera Computer Company (now Cray Inc) where he was a principal engineer and product manager for the MTA-1 and MTA-2, the first two generations of the Cray's multithreaded architecture. He has taken short sabbaticals to work at Sun Microsystems, Microsoft, and Context Relevant. Dr. Feo's has held academic positions at UC Davis and Washington State University.