1128-62-215 **Hongbo Dong*** (hongbo.dong@wsu.edu), Washington State University, Pullman, WA 98103, **Wei Li**, WA , and **Haijun Li**. *Faster estimation and calculation of standard errors for vine copulas with automatic differentiation.* Preliminary report.

Vine copula is a flexible tool for modeling the dependence structure of multivariate continuous random variables. It is especially useful in situations where the standard Gaussian assumption is problematic. Current computational practice for maximum likelihood estimation, as well as calculating standard errors, suffers from the bottleneck of slow calculation of gradients. In this talk we will give a brief introduction on the vine copula model, its connections with Gaussian graphical models, and demonstrate that automatic differentiation tools can improve the current computation by orders of magnitude. We will also report some recent progress of integrating automatic differentiation into improve the state-of-the-art R package VineCopula. (Received February 27, 2017)