# Knowledge Cascade: Reverse Knowledge Distillation

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Knowledge distillation methods have achieved remarkable performance in model compression. Knowledge distillation effectively compresses the knowledge learned by a large-and-complex model (teacher model) to a small-and-simple model (student model), so that deploying the student model itself is easier while preserving the performance of the teacher model.

In this talk, I will present a reversed version of knowledge distillation, called knowledge cascade (Kcas). In contrast to knowledge distillation, KCas targets to utilize the knowledge learned by the student model to help train the teacher model. Although this is challenging since the teacher model often contains more information, we show that KCas is possible by taking advantage of asymptotic statistical theory. We demonstrate KCas on the nonparametric multivariate functional estimation in reproducing kernel Hilbert space.

**Biography:**
Ping Ma obtained his PhD in Statistics at Purdue University in 2003. Subsequently, he was a Postdoctoral Fellow at Harvard University and an Assistant Professor and Associate Professor at the University of Illinois at Urbana-Champaign. He is currently a Distinguished Research Professor at the Department of Statistics of the University of Georgia. In 2017, he was named a Fellow of the American Statistical Association (ASA). His main research area is Big Data Analytics, while his research interests focus on bioinformatics, functional data analysis, and geophysics.