

國立中央大學數學系

專題演講

主 講 人：Greg Yang (Microsoft Research Lab - AI)

演講題目：Tensor Programs: A Swiss-Army Knife for the
Theory of Deep Learning and Beyond

演講茶會：2019年12月26日(星期四) 2:30 p.m. ~ 3:00 p.m.

茶會地點：中央大學鴻經館M306

演講時間：2019年12月26日(星期四) 4:00 p.m. ~ 5:00 p.m.

演講地點：中央大學鴻經館M107

Abstract：

The resurgence of neural networks has revolutionized artificial intelligence since 2010. Luckily for mathematicians and statistical physicists, the study of large random network scaling limits, which can be thought of as *nonlinear* random matrix theory, is both practically important and mathematically interesting. We describe several problems in this setting and develop a new comprehensive framework, called “tensor programs”, for solving these problems. This framework can be thought of as an automatic tool to derive the behavior of computation graphs with large matrices, as used in neural network computation. It is very general, and from it we also obtain new proofs of the semicircle and the Marchenko-Pastur laws. From this framework follows many insights on neural networks, such as the limit of wide neural networks to Gaussian processes. This talk presents the works arXiv:1902.04760 and arXiv:1910.12478.

贊助單位：

1. 國家理論科學研究中心
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