



THE UNIVERSITY OF CHICAGO

COMPUTATIONAL AND APPLIED MATHEMATICS COLLOQUIUM

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The Functions of Deep Learning

THURSDAY, November 14, 2019, at 4:00 PM
Jones 226, 5747 South Ellis Avenue

ABSTRACT

Deep learning refers to the creation of a function $F(v)$ that matches the known outputs on a training set of data—for example on images v of digits or letters. The key point (and the magic) is that F should also succeed on unseen data v from the same population: partly explained....

The function is normally continuous and piecewise linear: a composition of simple functions of the form $\max((Av + b), 0)$. The success of modern machine learning is to choose matrices A and vectors b that minimize the final error between $F(v)$ and the known output.

This large optimization is reduced for Convolutional Nets when A uses the same weights at all points of the image: a banded Toeplitz matrix at each layer of F .

Organizer:

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CAM Colloquium URL: <https://cam.uchicago.edu/events/cam-colloquium/>.

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