



THE UNIVERSITY OF
CHICAGO

Computational and Applied Mathematics
&
Statistics Student Seminar

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Amortized Method of Moments for Multireference Alignment and Cryo-EM

TUESDAY,
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12:30 PM
Jones Laboratory,
Room 303

ABSTRACT

In this talk, we introduce the problem of multireference alignment, which broadly aims to estimate a signal from its translated noisy copies. We will discuss our method of using deep neural networks to represent the FFT of our signal and distribution of rotations, and reconstruct them from the first and second moments of our input data. We will also demonstrate usage of DNNs to learn the distribution of rotations from the moments to speed up convergence during reconstruction. Then we shall talk about a related, and more general problem of (ab initio) cryo-em modeling, which involves an added issue of projecting a 3D signal to two dimensions.

This is joint work with Yuehaw Khoo and Nir Sharon.