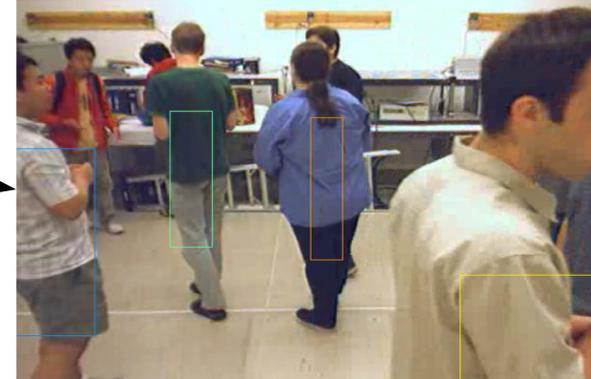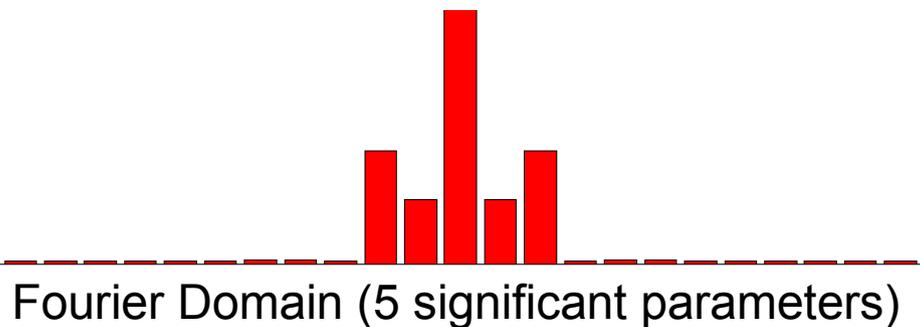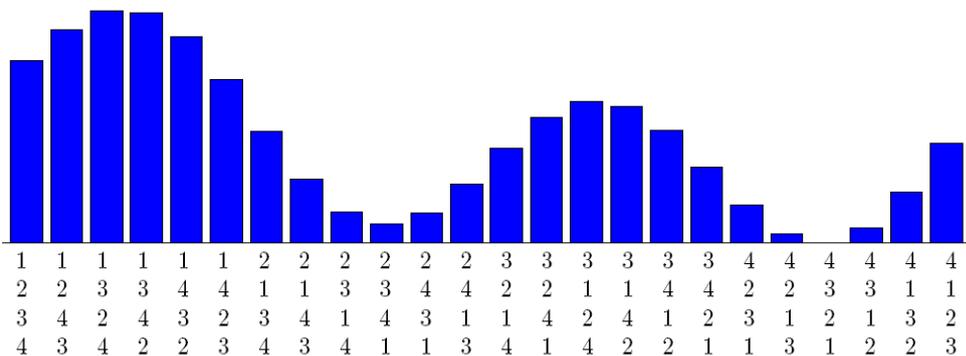# Efficient Inference for Distributions on Permutations

Jonathan Huang, Carlos Guestrin, Leonidas Guibas
Poster ID: W19
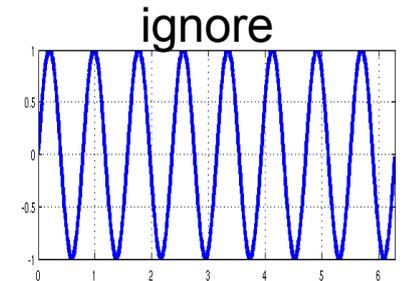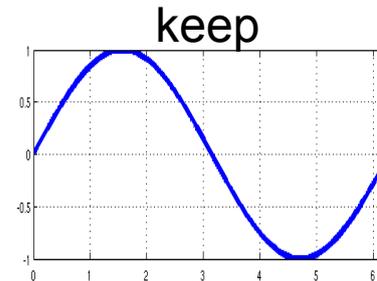
- Lots of problems require us to reason with permutations, like rankings, voting, data association for tracking, ...

- Distributions over permutations require O(n!) storage...

Distribution (n=4, n!=24 parameters)

Fourier Transform

Fourier Domain (5 significant parameters)

- Approximation: Keep "low-frequency" Fourier terms!

keep   ignore

- But... what is the Fourier basis over the permutations?
- How can we do marginalization and conditioning in the Fourier domain?
- Answers to these burning questions and results on real tracking data at our poster!