Speed — Relative angle — Distance

Reduced dimension 2 / Reduced dimension 1

Face groom — *Orient left* — *Rear*

Feature distribution: Inter-forepaw distance, Snout speed, Body angle / Probability
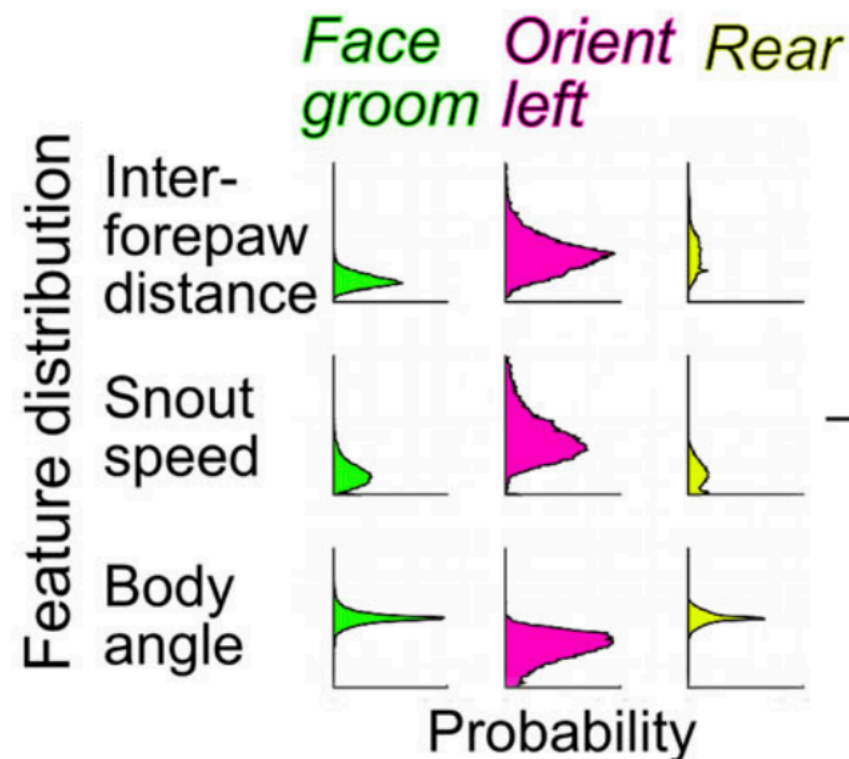
B-SOiD prediction: *locomotion*

Extract pose relationships

Advantages:
- Any pose or marker data
- Any model organism
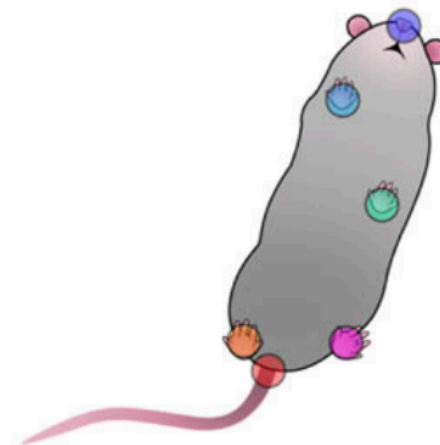- Any camera angle

Pattern identification

- Retains high-D structure in low-D space
- Finds optimal number of cluster groups

Machine learning

- Multi-class behavioral classifier trained on postural features
- Unlike statistical clustering alone, algorithm generalizes across feature space

Apply classifier to new data

Advantages:
- Accelerated processing
- Apply across datasets, labs
- < 5 ms detection resolution
- Limb kinematics