

REIMPLEMENTING THE FRISHEEPING HERDING ALGORITHM USING FUZZY LOGIC

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OUR MAIN GOALS

Reimplementation of fuzzy logic for FRI/sheeping

- Introducing dynamic environments

1 Research the initial Strombom model

2 Implement fuzzy Strombom model

3 Implement fuzzy Herding model

STRÖMBOM MODEL

$$H'_i = hH_i + cC_i + a\hat{R}_i^a + s\hat{R}_i^s + e\epsilon.$$

H_i Previous sheep's direction

C_i Attraction to other sheep

\hat{R}_i^a Repulsion from other sheep

\hat{R}_i^s Repulsion from shepherd

ϵ Inertia

→ **New heading**

FUZZIFICATION OF THE STRÖMBOM MODEL USING OCEAN

Openness

Conscientiousness

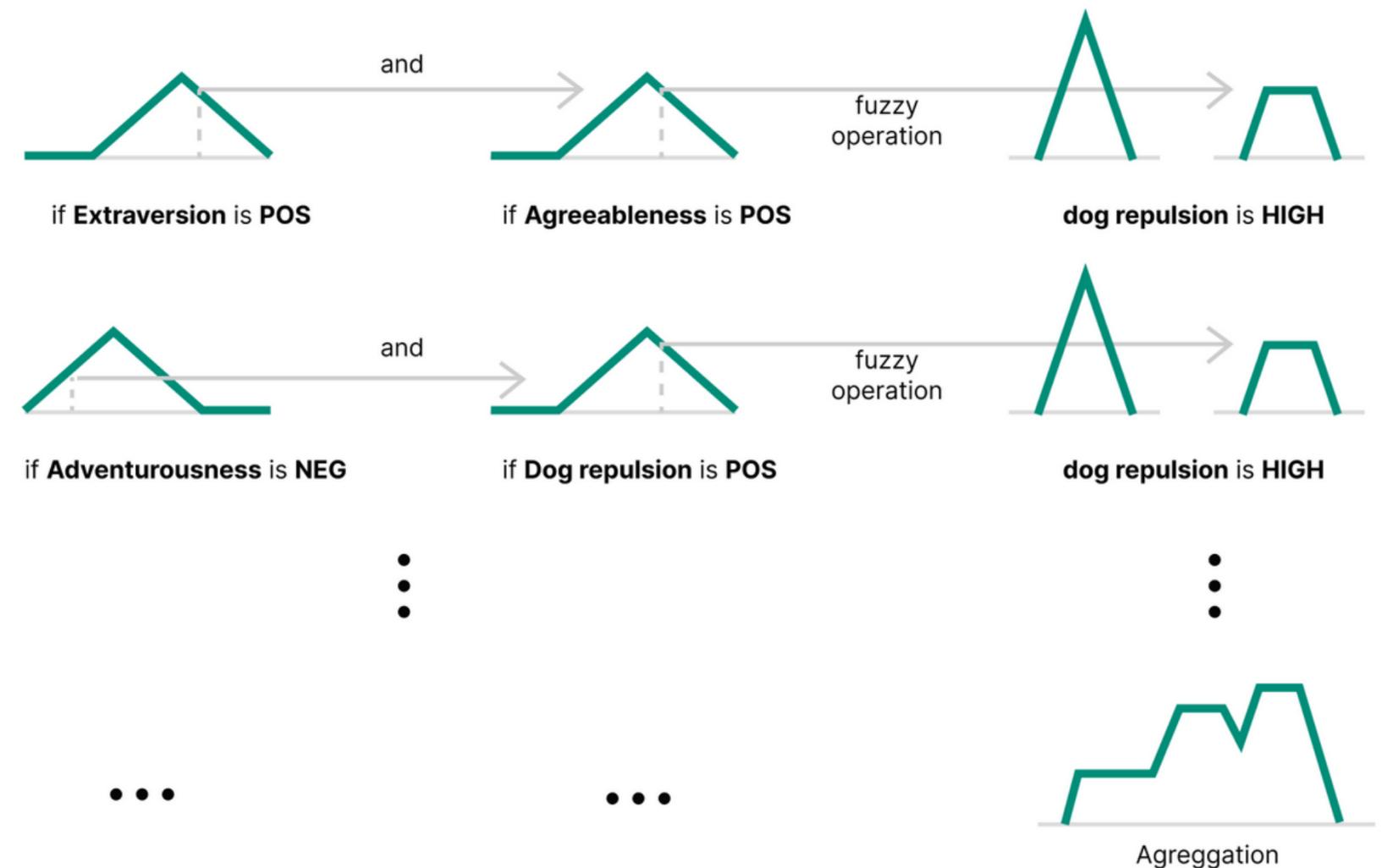
Extraversion

Agreeableness

Neuroticism

Strombom inputs

OUTPUT: Strombom parameters

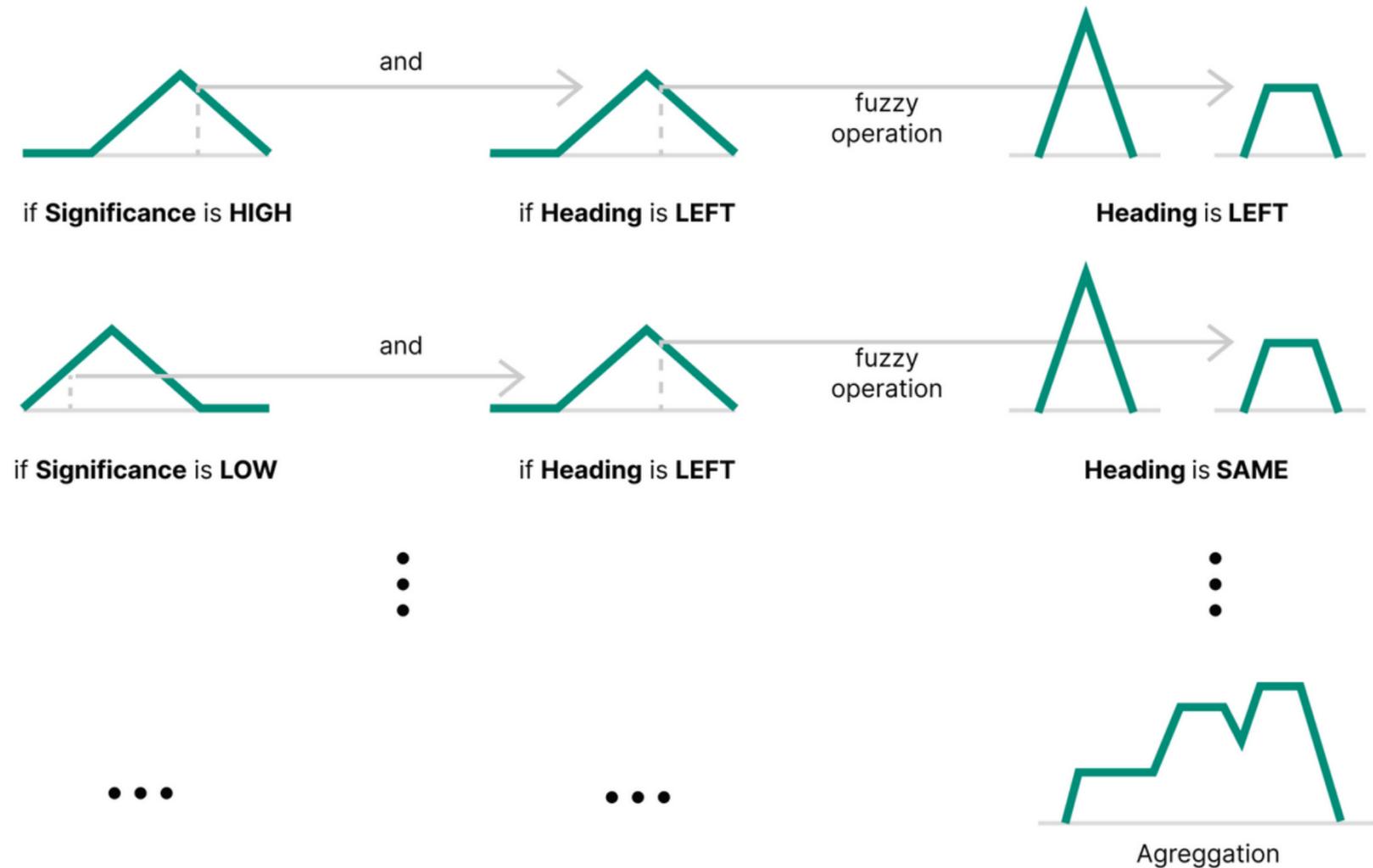


FUZZY HEARDING ALGORITHM

Heading

Speed

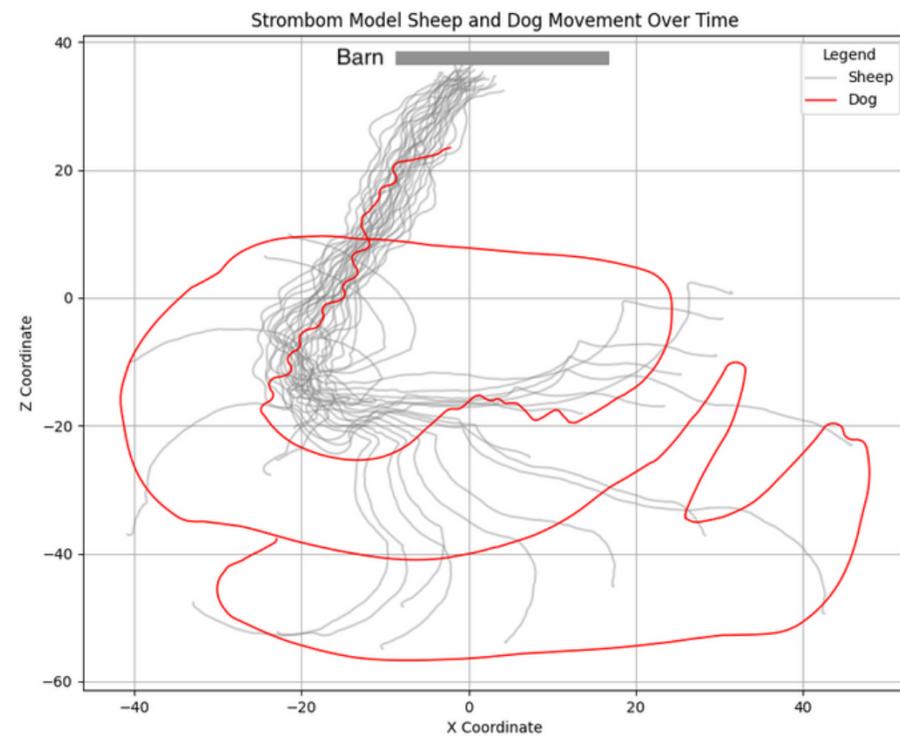
Significance



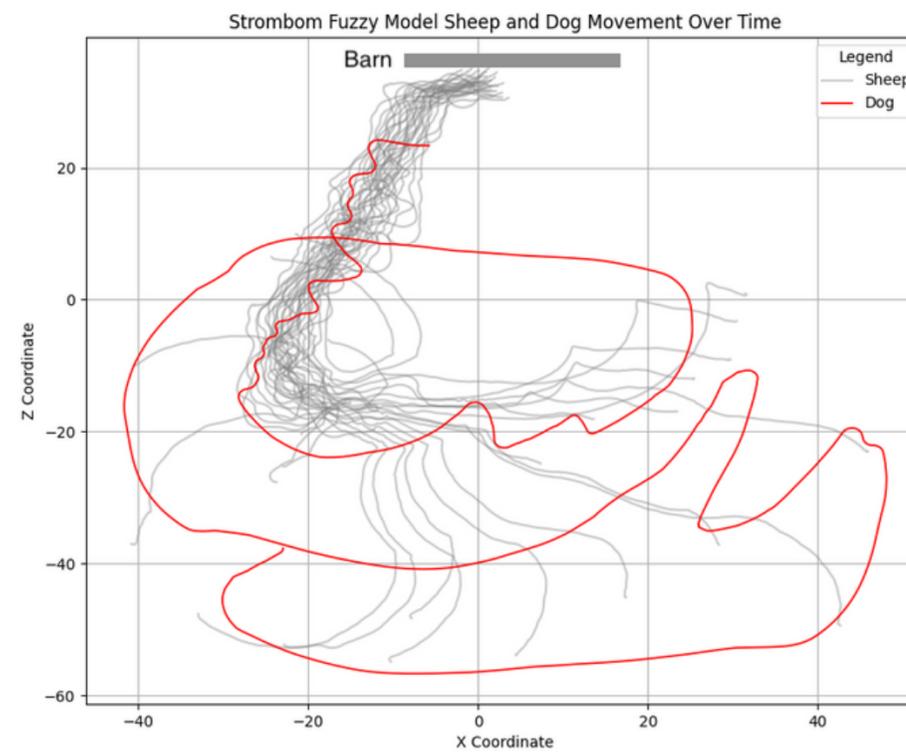
OUTPUT: Direction and Speed

SIMULATIONS

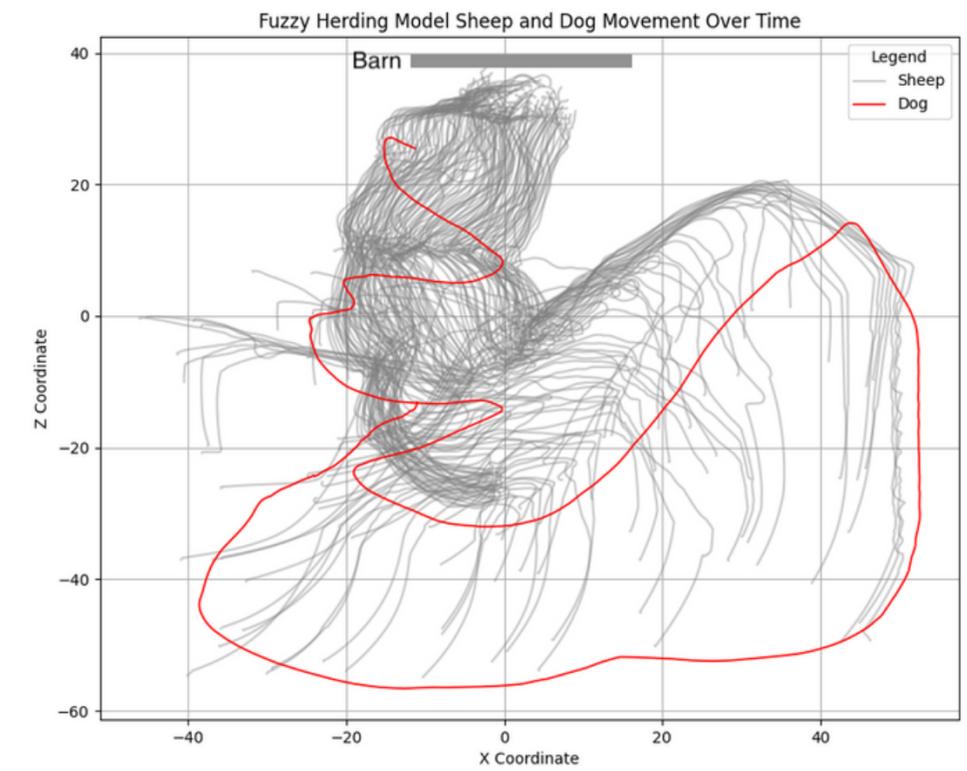
Strombom algorithm



Fuzzy Strombom algorithm



Fuzzy Heading algorithm



IMPROVEMENTS

Fuzzy Herding - center of mass problem

Fuzzy Herding - occlusion

Different visualization techniques

DEMO



THANK YOU

