

THE RADNITZ-MONIZ CONJECTURE

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ADDENDUM

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Talk Structure

THE RADNITZ-MONIZ CONJECTURE

SECTIONS

CONTEXT

01

THE WORK

02

DISCUSSION

03

Research Question



How does integration of past confidence and performance mediate decision-making?

Motivation



What factors mediate decision-making?



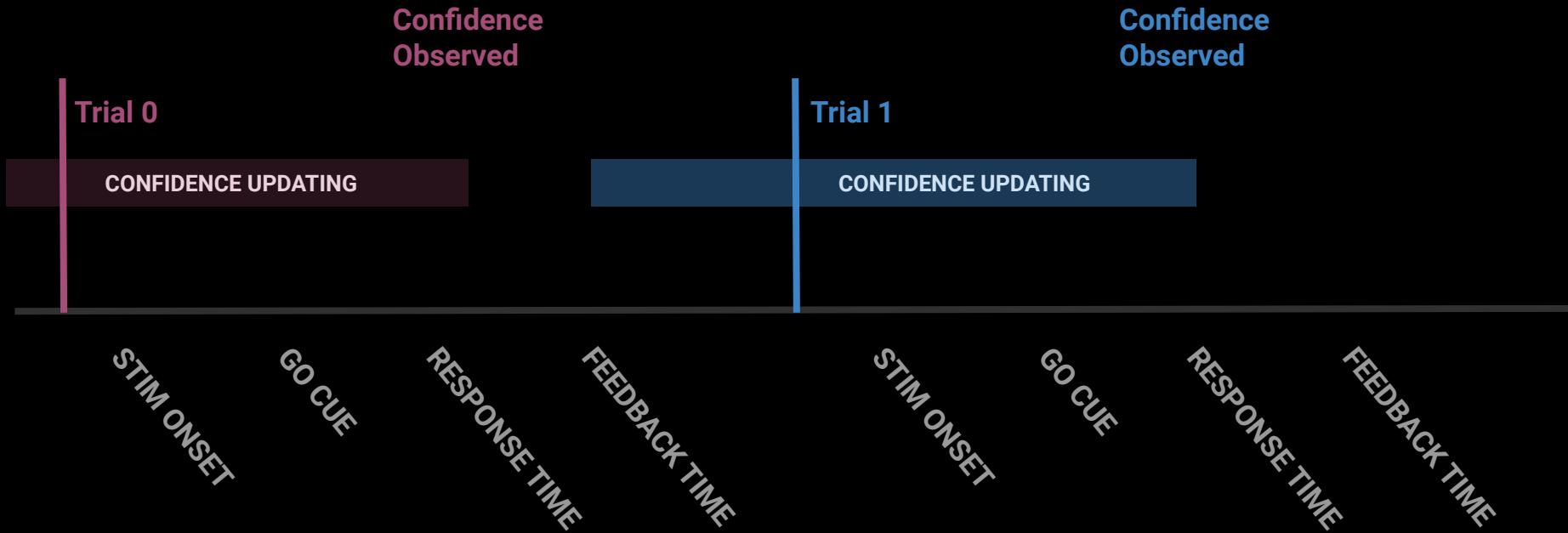
How do agents decide between speed and accuracy in a 2AFC task?



Do mice have an internal perceptual confidence measure?

CONTEXT

Confidence Updating



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Relationships

Data

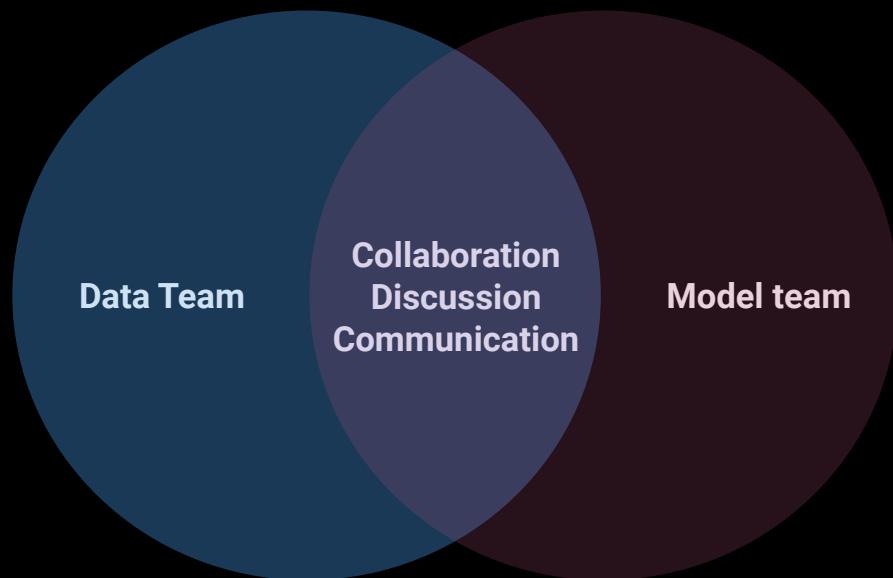
Past, present, and future

- Latency
- Accuracy
- Difficulty
- Wheel velocity + acceleration

Spiking data

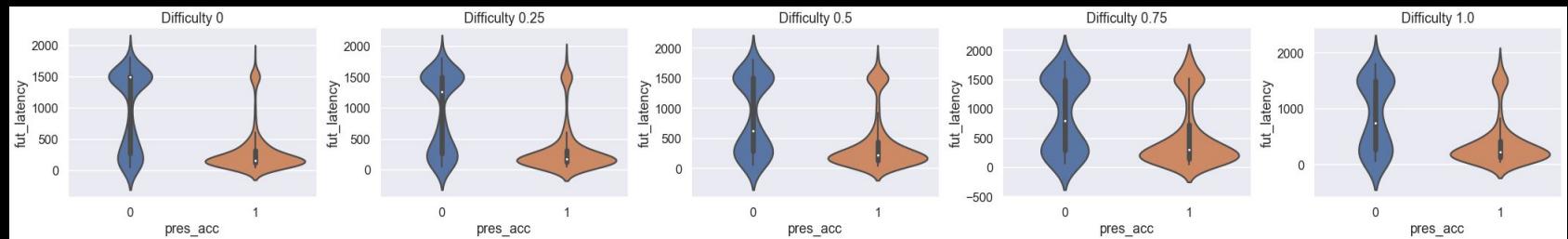
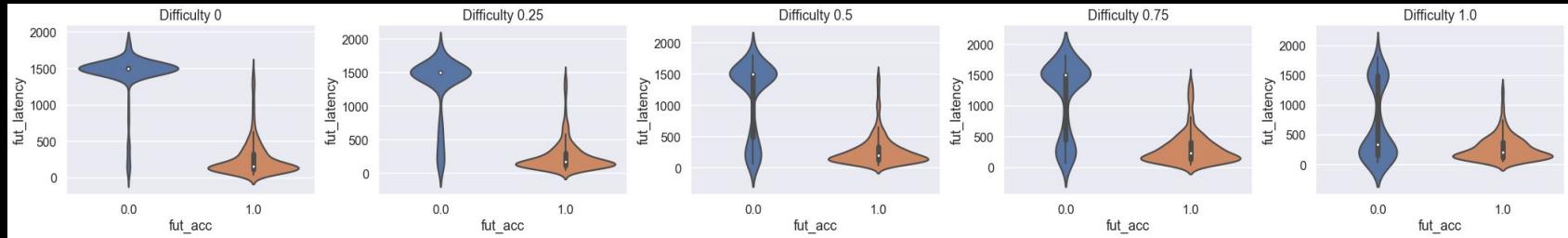
- Anterior cingulate area (ACA)
- Nucleus Accumbens (ACB)
- Visual cortex

But also ours!



THE WORK

Behavioral Data



THE WORK

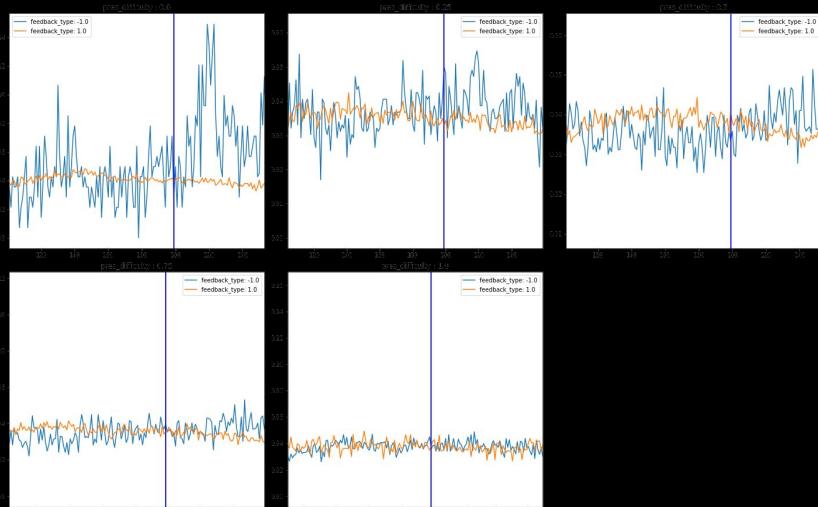
Behavioral Data Analysis

Difficulty	U-val	P-val	CLES
0	251225.0	<.01	.81
25	157314.0	<.01	.75
50	192230.0	<.01	.72
75	105398.0	<.01	.70
100	22849.0	<.01	.62

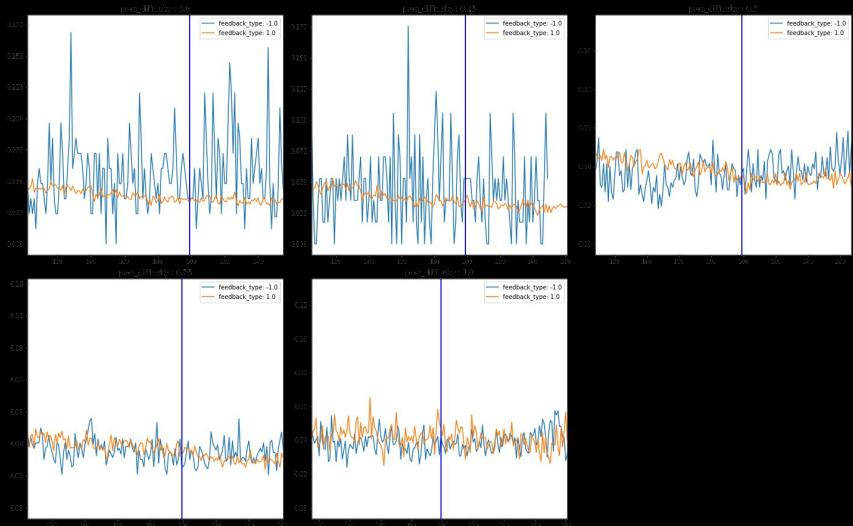
THE WORK

Spiking Data

Anterior Cingulate Area (ACA)



Nucleus Accumbens (ACB)



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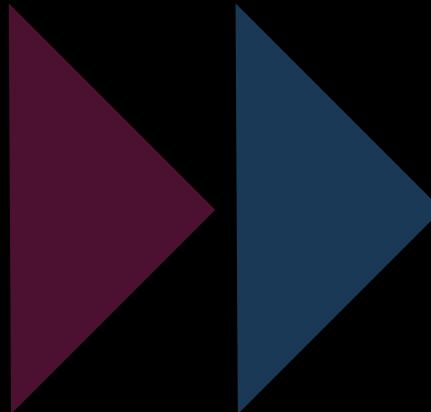
03

DISCUSSION

Future Work

- **More modeling!**
 - Reinforcement Learning
 - Hebbian learning
 - Drift Diffusion models
 - Kalman filtering

- **More brain data exploration!**
 - Anterior cingulate area
 - Nucleus accumbens
 - Orbitofrontal cortex (Kepcs et al.m 2018)
 - Fronto-medial cortices

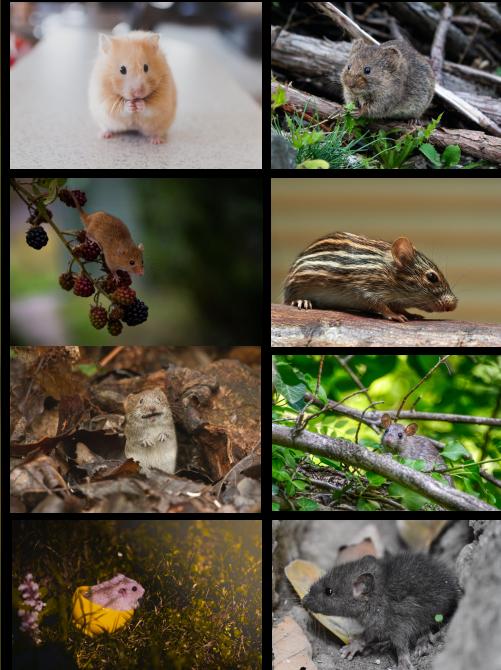


Addendum

IN MEMORIAM

The Steinmetz Mice

ADDENDUM



A huge thank you to our mentor:



Charlie Wilson

Special thanks to our TA and glorious leader:



MICHAEL NOLAN